

ARCHAEOLOGY



SUMMER 1958

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ARCHAEOLOGY

A MAGAZINE DEALING WITH THE ANTIQUITY OF THE WORLD

VOLUME 11 NUMBER 2

JUNE 1958

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editorially speaking . . .

A GRATIFYING DEVELOPMENT of recent years is that increasing numbers of young people are reading this magazine—sometimes through school or class subscriptions, frequently as individual subscribers. Since much of the material we publish is rather difficult even for adults to absorb, we feel doubly pleased to know that there are a good many tough-minded young readers who are not discouraged by occasional rough going. We should like to remind these college and high school students that they are eligible for student membership in the ARCHAEOLOGICAL INSTITUTE OF AMERICA. A young person who is seriously interested in archaeology will find it definitely worth while to join. In forty-seven cities there are local societies of the AIA, and each year illustrated lectures are given under their auspices. Here students have a splendid chance not only to hear first-hand reports of current excavations but actually to talk with field archaeologists and to get valuable advice from them. Information about joining the AIA can be obtained by writing to the General Secretary, ARCHAEOLOGICAL INSTITUTE OF AMERICA, 5 Washington Square North, New York 3, N. Y.

FOR THOSE WHOSE INTEREST in archaeology is just beginning we can recommend three good introductory books—one reviewed in this issue (Jessup, *The Wonderful World of Archaeology*)—and two others recently published: Kubie, *The First Book of Archaeology* (Franklin Watts) and Allen, *The Story of Archaeology* (Philosophical Library). The first two are for children; the last is the most advanced and gives more detailed information. An excellent series of books for those who have progressed beyond the beginning stages is now being published (Praeger) under the editorship of Glyn Daniel. Called *Ancient Peoples and Places*, it treats of the various areas of the world and their past. The first volume, *Peru*, is reviewed in this issue; five volumes have appeared thus far. All are written by authorities and we recommend them without reservation.

A READER who leafs through this issue may think on reaching page 115 that he has picked up an entirely different magazine. The nuclear reactor shown here is definitely not something left us by the ancient world, but it is helping us to find out a good deal about it. We illustrate this complicated mechanism as a reminder of the important part which modern science has come to play in the study of man's past. Its use has really only just begun and we can look forward to many interesting developments.

MOST OF THE ARTICLES we publish are written by professional archaeologists, but two in this issue are by amateurs, and this is especially appropriate for the AIA, an organization which welcomes the amateur as well as the professional. We are delighted to have these articles and hope that others whose archaeological work is necessarily on a part-time basis will send us contributions of this sort.

THE YEAR 1958 is notable for the number of international congresses scheduled to take place in various parts of the world. Americanists are meeting this summer in Costa Rica, prehistorians in Hamburg, Classical archaeologists in Rome and Naples. We expect to publish interesting reports on these gatherings as well as on other meetings of a more specialized nature.



TWO CARVED LINTELS FROM TIKAL

By William R. Coe

TIKAL, set on an eminence above the generally flat jungle of northern Guatemala, deserves every superlative that a travelogue can devise. Seen from the air as five white temple crests above the immense forest, this fabulous Maya site is now the focus of excavations by The University Museum of the University of Pennsylvania. As the government has constructed an airfield, Tikal is now easily reached by tourist and archaeologist alike. The visitor sees great central complexes of palaces and temples with their associated plazas, courts and monuments. Believed to have functioned during the first millennium A.D., the seemingly endless remains that comprise Tikal offer us

THE AUTHOR, who is a staff member of the American Section of The University Museum, University of Pennsylvania, was born in New York in 1926. He studied at the University of Pennsylvania (Ph.D. 1958), and has excavated in British Honduras, El Salvador and Bolivia. For the past two seasons he has been with the University Museum expedition to Tikal, whose Field Director is Dr. Edwin A. Shook. Brief accounts of the Tikal project have appeared in *ARCHAEOLOGY* 9 [1956] 68 and 10 [1957] 221-223.

a glimpse of pre-Columbian culture at its height.

The second season, in 1957, was spent primarily in establishing a permanent base, beginning a map intended eventually to cover sixteen square kilometers, and exploring for dependable water supplies. In addition,

excavations were undertaken and important sections of this unbelievably large and rich center were cleared of forest. One of the season's high points was the recording of two previously neglected carved wooden lintels.

In the course of clearing the site we removed the accumulated debris from the interior floors of Temples I and IV and partially from Temple III. Temple IV, 230 feet high, is the tallest standing structure in the aboriginal New World. As we removed the debris we found that fragments of wooden lintel beams littered the floors of these great ceremonial buildings. Thousands of splinters and chips had remained from the

LINTELS FROM TIKAL continued

crude removal, in the nineteenth century, of the magnificent carved *zapote* wood lintels which are now to be seen in Basel and London. These extraordinary carvings were illustrated by Alfred Percival Maudslay in his invaluable contribution to *Biología Centrali-Americana* (London, 1889-1902).

A dozen small carved fragments found on the floor of Temple I obviously belonged to the impressive jaguar lintel now in the Basel Museum für Völkerkunde and figured in Maudslay's Plate 71. There is now no doubt that the lintel belongs to this structure. Specifically, it was placed across the innermost of its three doorways. Similarly, a few carved splinters of the complete lintel in Maudslay's Plate 77 were found in Temple IV, thus confirming its previous assignment to that temple through measurements.

These minor excavations provided a chance to observe the few lintels still in place. In Temple III, the outer lintel (whether carved or plain is unknown) had collapsed long ago and was buried under a jumble of mortar and limestone vault stones. But the other lintel, spanning the single interior doorway, was still largely intact and, despite the weak light and confusing lime coating, one could make out the deeply carved details on its underside. As one stared up at the lintel, set some ten feet above the floor, here and there one could detect a mask, a hand, a stylized jaguar spot. The constituent beams, of which one is missing from the original ten, are oriented north and south, while the temple itself opens to the east. The outer beam may have rotted out, but its presence and size are indicated by plaster impressions. Some of the beams appeared reasonably intact, while the surfaces of oth-

ers were badly ruined. But portions that had resisted rot and termites had not been spared vandalism: large areas had been seriously mutilated by the machete.

The situation was similar in Temple I, which had three doorways, one behind another. There the central doorway had been spanned by four carved beams of which only the front two survive. The two missing beams were probably removed in the last century and subsequently lost. Though originally smaller than the lintel seen in Temple III, this lintel in Temple I is obviously an excellent example of intricate wood sculpture.

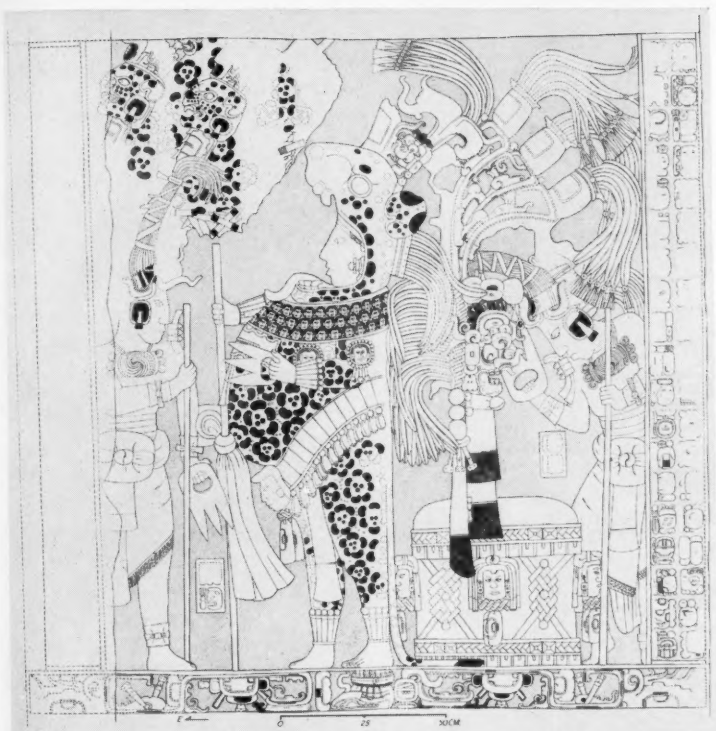
Oddly enough, these lintels received only slight mention by scholars such as Teobert Maler and S. G. Morley, but in view of their condition this is understandable. There is, however, some evidence that a portion of Lintel 2 of Temple III was

recorded during Modesto Mendez' visit to Tikal in 1848, a visit that marks the beginning of modern knowledge of the site. In 1924 Frans Blom hastily sketched the central and right-hand figures of this same lintel (illustrated in *War and Weapons of the Maya*, by Prescott Follett).

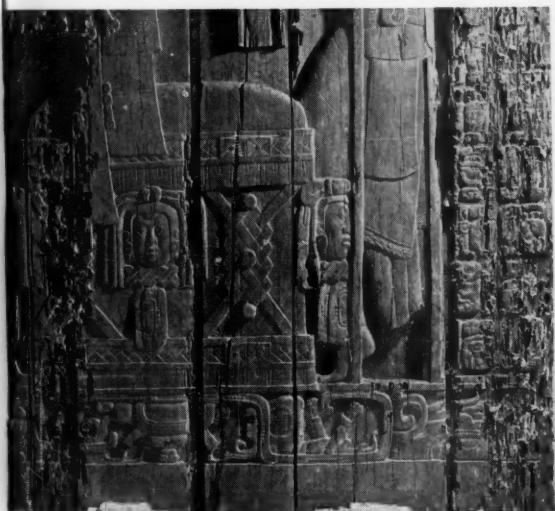
With bottles of water, buckets, ladders, tapes and cameras, each lintel was cleaned, measured and photographed. A weak solution of vinegar was chosen as the best available agent for removing the calcareous accumulation that obscured much of the lintels' carved surfaces. Unless the deposit was removed, attempts at photography under natural or artificial light would be unsatisfactory. Termite encrustations were removed with dental tools. Soft toothbrushes and the weak acid solution sufficed to clean the lintels. Portions that seemed sturdy often proved paper-



Temple III, looking southeast. Here the dense vegetation has been partially cleared away.



Drawing of Lintel 2, Temple III. The background is indicated by stippling. Reconstructed portions are shown by broken lines.



The throne, its bordering frieze and part of the glyphic panel at the right side of the Temple III lintel.



Part of the central figure on the Temple III lintel, showing the unique collar of human heads, the trident, and details of the costume. Photo by George Holton.

LINTELS FROM TIKAL continued



Temple I at Tikal as it appears today. The height is 137 feet from ground level.

thin, but little detail was lost in the cleaning process.

Hundreds of photographs were taken of each lintel, first in the weak contrast given by daylight and later in the harsh but revealing light of a Coleman lamp. The drawings were made afterward in Philadelphia. The first step was to make tracings from negatives projected to scale on paper. These outlines were then filled in from prints showing sections of each lintel under various lightings. Considering the damage done by rot and mutilation, it is surprising that so much was recoverable.

AT FIRST GLANCE, the Temple III lintel is probably the more impressive. Its sculptured area is actually the largest among the known lintels from Tikal, measuring slightly more than 2 x 2 meters. The whole is quite symmetrical, with a panel of

thirty-eight hieroglyphs on its right edge balanced by a comparably arranged beam (now missing) on the left side. Between the two is a scene in bas-relief (2.5 to 3 cm. deep) comprising a central figure of staggering girth and, on either side, an attendant figure with physical proportions more familiar in Classic Maya art. Each figure holds a peculiar tridentate object and a staff. Each stands barefooted. The flanking figures are identically dressed, with bound hair, a complex pectoral ornament, cuffs on wrists and ankles, and a simple fringed skirt with a cummerbund. Behind the central figure is a throne displaying heads with pendant shells and, between the heads, the mat device so frequently seen in lowland Maya art. Above the throne, and evidently quite free of the central and right-hand figures, is a magnificent mask or head of a

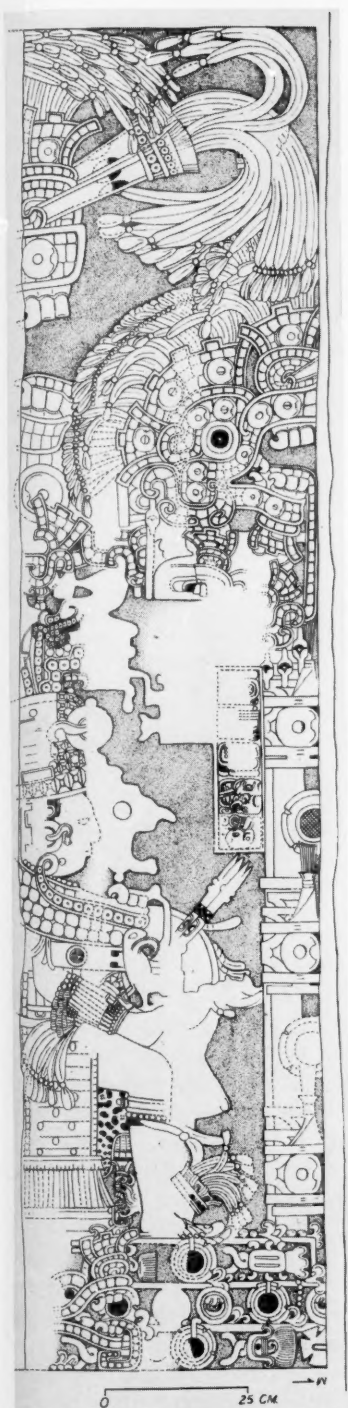
long-nosed deity, illustrated at the top of page 75. But it is the obese creature that one immediately notes, dressed as he is in jaguar skin, complete with tail, his head set between the fangs and tongue of the jaguar head. His elaborate collar is composed of rows of tiny human heads, and below this are beaded medallions containing human heads. His extravagant stomach is supported by a broad belt with a fringe of Oliva shell "tinklers" and a head with pendants. He wears a simple loin-cloth. The jaguar skin covers the legs down to the beaded anklets.

Above the attendant at the left is an area with a scalloped edge which once was covered by kidney-shaped jaguar spots, overlapping leaf-like elements and decorated rectangular objects. Two jaguar heads can also be seen in this section, each crested by a long-nosed deity, duplicating in miniature the ornaments topping the principal figure's headdress.

The fantastic mask above the throne is backed by a panache of plumes, surely of the emerald-green quetzal. These feathers are secured by a long knot-like element that holds in addition elaborate supports curving towards the upper right and ending in three bulbous objects. From these extend sprays of feathers, each ending in a beaded tassel.

This fantastic scene, along with the glyphic texts, rests on a band composed of scrolls enclosing and interspersed by various obscure elements. Portions of it have been completely lost but its evident bisymmetry allows a certain amount of restoration.

In making a drawing of the lintel, the actual gaps (1-2 cm.) between the component beams were disregarded. Plaster squeezes between the gaps indicate no significant spreading since installation. This would indicate that the lintel was not carved in position. But one wonders why the sculptural continuity was



Drawing of Lintel 2, Temple I.

broken when the beams were eventually set. It is possible that the entranceway was built too deep for the completed lintel, and an increase of roughly ten centimeters in the east-west span could be obtained by separating the beams. In a future publication we hope to discuss this problem more fully.

Among the intriguing elements in the scene carved on this lintel is the curious three-pronged object held by each personage, which has been noted before in different media at various lowland Maya sites. On monuments at certain other sites this object bears an incised design that is also seen on blades of sculptured spears. This suggests that these tridents were probably of flint and thus fall in the category of "eccentric flints." Yet, among the hundreds of "eccentrics" recovered to date at Maya sites, remarkably few correspond to the type so consistently portrayed on stone, on pottery, and now on wood.

One interesting problem is whether the central figure is meant to be

truly clothed in jaguar skin or only painted to simulate the jaguar. His head is certainly encased in a jaguar head, and the tail is present. The jaguar markings cease at the bracelets and anklets. While these facts might indicate fitted clothing, could such clothing ever have existed? The scene includes so much of the unreal that the jaguar suit may be fantasy too. Fitted clothing, in contrast to the usual cape and skirt or loin-cloth, is rarely seen in Maya art.

OF THE SECOND LINTEL, from the doorway of the middle room of Temple I, only two beams remain. Although greater in length than the Temple III lintel, it was much narrower (east-west). While the Temple III motif was feline, here the serpent is emphasized. The carving is much more delicate, its detail more intricate, and the scene somewhat less comprehensible. What remains of the scene shows a priestly individual seated on a throne. In his hands (now completely destroyed) he holds a circular shield and a pair of dou-



The northern portion of the Temple I lintel.

LINTELS FROM TIKAL continued



The Temple I lintel in position above the central doorway. Note negative and positive red imprints of hands, made in ancient times, just above and below the spring of the vault. The carved lintel from the rear doorway (rough masonry at lower left) is now in the Museum für Völkerkunde, Basel, Switzerland.

ble-pointed darts or spears with banded decoration on their shafts. The throne has a seat of jaguar skin. Details around the figure's feet have been largely lost, but the beautifully carved right foot remains, with the sandal thongs between the toes. Despite damage, the line of the calf and the fringed garter can be seen. The face is completely gone except for suggestions of brow, chin and lower lip. But one notes the unmistakable outline of a mask. The head is capped with a mass of rosettes, probably meant to be of jadeite. The neck and chest are hung with more jewelry including, oddly, three teeth, one a sharply curved fang. Above the figure is a baffling confusion of serpent elements—discs and segments, gaping mouths with teeth and pendant tongues. Above all this, two elaborate matched standards are inserted in a serpent head. Each of these ends in a panache of plumes.

This fascinating but sadly incom-

plete scene has as its base a band with three elements composed of decorated discs and scorpion-like and serpentine devices. The right side of the lintel is bordered by a pillar of repetitive components which extend to the upper serpent detail. A paneled text remains with five damaged glyphs, one of which retains a numerical coefficient. Originally there may have been two more glyphs at the upper left.

It is a pity that the two other beams belonging to this lintel have disappeared. None of the unassigned carvings previously removed appears to fit the scene. Again it should be noted that the lintel in the Basel Museum, showing an enormous jaguar looming over a seated individual, belongs to Temple I. We now know that it once occupied the rear doorway of this temple. The lintel above the outer doorway is undecorated. The two carved lintels of this temple resemble each other in intricacy of

detail, in the repetitive border, and in the emphasis on animal motives. Both belong to the Late Classic period, most probably around 9.16.0.0 in the Maya system (A.D. 751).

These two examples of woodcarving at Tikal, carried out in one of the hardest and most durable of woods, without the advantage of our metal chisels, are not only aesthetic but also technological triumphs. With their unequaled detail and the representation of concepts whose meaning is now largely lost, they stand beside the sculptures recorded by Maudslay, Maler and Morley. Despite their magnificent embellishment, the basic design is not entirely obscured, as we see on the lintel from Temple III.

Now that these works of art have been measured and recorded, we plan to halt their slow deterioration with some preservative. And as the excavations proceed we hopefully anticipate finding others of these superbly carved wooden lintels.

A SCANDINAVIAN COMMUNITY IN PEACE AND WAR

By Ole Klindt-Jensen

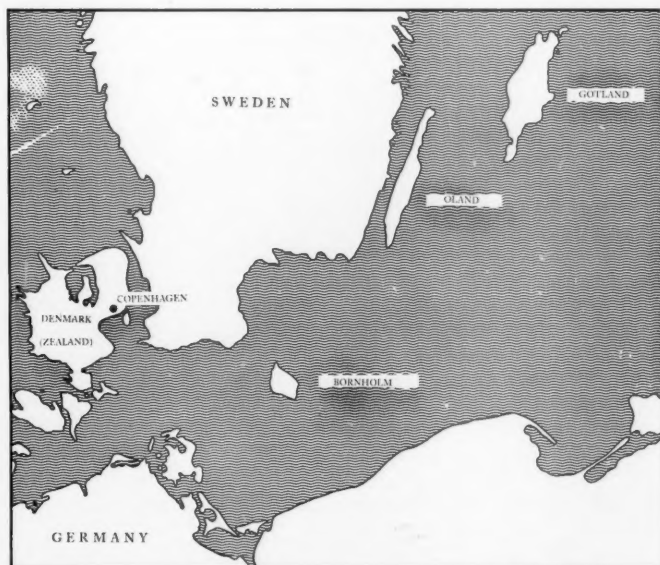
THE DANISH ISLAND OF BORNHOLM, in the Baltic, is an attractive place. It is rocky in the north, rather flat in the south. In the coastal areas there is rich clayey soil, whereas the middle of the island is barren. Many remains of antiquity are scattered in the coastal zone—graves with boat-shaped stone settings, stone circles and barrows. Here can be seen upright stones and rock-engravings in the shape of ships, for the ship was in special favor with the ancient people of Bornholm. Standing on the rocks of the northern part of the is-

land one can just see the Scanian coast of Sweden, twenty-five miles away.

How many young men could withstand the temptation to set out in their long rowboats and see what the surrounding coasts looked like? Since there is much evidence for foreign relations during the Iron Age it seems that the sea facilitated communications rather than restricted them. Besides, there is no iron on Bornholm, no salt, no natural sources of copper, tin, gold or silver. Travel to other countries must have been a matter of simple necessity.

From the Migration period (fifth and sixth centuries) is known a series of rich hoards containing gold coins (the latest of which date about A.D. 510), rings, ornaments and costly brooches. A few graves have been found, but until recently nothing has been known about the settlements, the building methods or the economy of the island during this period.

DR. KLINDT-JENSEN, who is Keeper at the National Museum, Copenhagen, has directed or taken part in numerous excavations both in Denmark and Sweden, and has written extensively on Scandinavian archaeology. A more detailed account of his excavations on Bornholm was published last year: *Bornholm i folkevandringstiden* (National Museum, Copenhagen 1957). For those who are interested in learning more about Danish prehistory and history we can recommend Dr. Klindt-Jensen's excellent new book, *Denmark Before the Vikings* (Praeger, New York 1957).



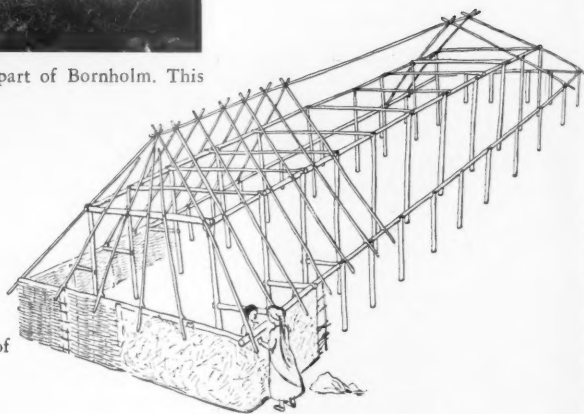
Map of part of the Baltic Sea area showing the position of the Danish island of Bornholm in relation to Denmark, Sweden and Germany.



View of Sorte Muld ("Black Earth") field in the eastern part of Bornholm. This was one of the two farm settlements excavated.

A SCANDINAVIAN COMMUNITY continued

Drawing showing the method of constructing the type of farmhouse excavated on Bornholm.



WHEN WE BEGAN EXCAVATING in two fields—one called Sorte Muld ("Black Earth") and the other Dalshøj—near Svaneke in the eastern part of Bornholm, the neighbors soon came and asked us—as people generally ask archaeologists—if we were digging for gold. In such cases we generally are cautious but this time we plainly said, "Yes, we are looking for gold coins and ornaments." The people naturally didn't believe us, but we were in earnest, and by chance we did find gold.

The reason there were so many visitors was perhaps that they knew of the old legend about a battle on the field of Sorte Muld between the Kurs, from the East Baltic countries, and the natives. The foreigners were defeated and they were buried close by the Sorte Muld field, at Mandhøj. Here we excavated several graves, but these were much earlier than the Sorte Muld remains. All the same, we found evidence of a battle fought in the Migration period.

Before going on to study this evidence, let us have a look at the settlement pattern and at the daily life of these people. Topographical investigation shows that the settlements lay scattered over the rolling landscape, quite like the farmhouses of present-day Bornholm.

There could not have been large forests among these settlements; more likely there were just small groves, as at the present time. But in the interior of the island there certainly were forests, as pollen analysis seems to show. The oak was the most common tree. We find oak charcoal in the cremation pits and among the house remains.

The settlements were isolated farms, as the excavations tell us. Both at Sorte Muld and at Dalshøj occupation ended in the Migration period. Each of these two farms was composed of two buildings, a larger one which yielded ample finds, and a smaller one which furnished a rather poor collection. The latter building seems to have been inhabited by domestic servants, perhaps slaves.

The walls were made of wood covered with clay. A row of thick posts was first set up, and between these posts were set thinner sticks with horizontal wattling. Evidence for this method of building is obtained partly from holes in the ground, partly from impressions in the burnt daub, of which many big lumps were found. From these it was clear that the vertical posts were split logs; here and there it could be seen how the axe had cut into the wood two or three times before the log

split. The house walls seem to have been quite low. We found remains of a wooden door 1.20 m. high. The roof was supported by two inner rows of free-standing posts, 20-25 cm. in diameter, but the outer parts of the roof naturally were supported by the wall posts. A model of one of these farmhouses is exhibited in the Bornholm Museum.

In the middle of the floor of the big house at Sorte Muld was a hearth of burnt clay, about 10 cm. high. Near this the housework was carried on, as we saw from the many finds of knives, spindle whorls, a hand-quern, etc. Some brooches which we found may have been attached to clothing. Against the wall was standing a vertical loom whose weights of baked clay were found as they had fallen when the house burned and the fire destroyed the threads which had held them. The other end of the house contained very few finds. Apparently the domestic animals lived here, at any rate during the winter, when they helped to provide comfortable warmth for the inhabitants. In the smaller building was a well preserved domed oven made of wattle and daub just like the house walls.

The finds in these buildings date them to the Migration period, as the comb, pin and brooch types show. This sort of farmhouse has ancestors in the early Iron Age, although at that time the buildings were simpler and smaller. At Dalshøj we could trace the history of the settlement back seven hundred years, to the middle of the pre-Roman period.

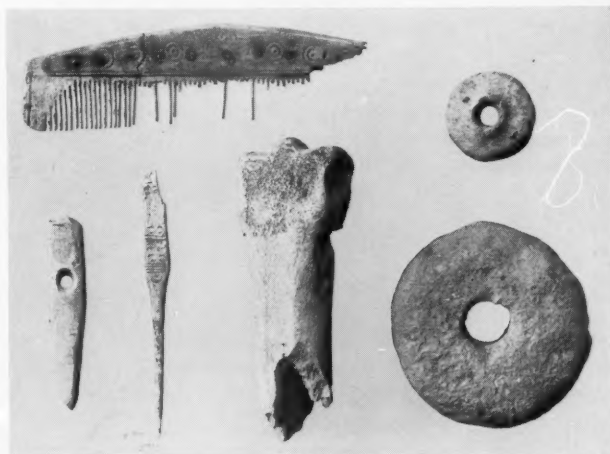
THE ECONOMIC LIFE of the Migration period farms was revealed by a long series of finds. On the floor of

the Sorte Muld building was discovered a little heap of burnt grain and seeds of wild plants. These have been examined by Hans Helback, the palaeobotanist. The blending of grain and weeds is rather curious, as earlier building foundations yielded large amounts of almost pure grain. Barley is the common species; eincorn and rye come next. But to blend seeds of wild plants with the grain is unnatural for farmers of soil as rich as that of Dalshøj and Sorte Muld.

The fields lay around the farmhouses; field walls of the earlier Iron Age have been preserved in the woods, and these are of the so-called Celtic type. The heaps of grain from the houses, including different species, show that each field was planted with one species of grain. In graves we have found sickles and scythes.

The many bones found are also important in illustrating the farming economy. These have been studied by the zoologist Ulrik Møhl, who says that most of the bones are from domestic animals—oxen, sheep, pigs, goats (which are rare), horses and chickens. The last mentioned were small, like our bantam chickens. Horses seem to have been pets, as well as dogs, usually Great Danes. Most of the animals were rather small, and the reason may be that the farmers did not know how to get fodder for the whole winter. Only the favorite animals had enough to eat. The young pigs were usually slaughtered during the winter. Remains of wild animals are rare. Some fish (sturgeon and herring) and birds (cormorant, goose, mallard and shoveler ducks, jackdaw and white-tailed eagle) and different types of seal are represented among the remains.

Bone ice skates, of which a fragment was found, may



Implements found on Bornholm. Above: bone comb and clay spindle whorl. Below, left to right: bone awl and needle, fragment of bone ice skate, clay loom-weight.



Thin gold plaques showing types of clothing worn on Bornholm in the Migration period.

A SCANDINAVIAN COMMUNITY continued

have been used for ice fishing. A pair of such skates is known from the Viking Age in Gotland, together with a fish hook and an iron point to be inserted in a stick. We know from later times, for example in Iceland, how people used these skates. They stood on the ice with the weight on both feet and the knees slightly bent. By pressing the iron-tipped stick against the ice between the legs, the skater was able to push himself along and cover great distances quickly. Bone skates are known from Bronze Age times in Central Europe, and they were popular in the Viking period. The sagas tell us some curious anecdotes, for not all Vikings were good skaters. One named Eystein was among the less expert. His brother, Sigurd Jorsalfar, teased him by comparing him to a bullock on the ice. After that skating episode they were bitter enemies!

Hunting was not practised by the farmers; it seems that kings or aristocrats had the monopoly of that sport. It is an interesting fact, however, that the people at Sorte Muld kept a fox as a pet. The keen zoologist remarked, when we showed him a fox cranium, that the teeth were worn down just like the dogs' teeth, proving that the fox must have eaten civilized food. The fox was probably captured when a cub, and tied to a post. Its yelping would have given a special character to the farmyard sounds.

Agriculture and cattle-breeding made the farmers relatively independent. Grain was used for porridge and bread. Meat was roasted in pits on heated stones. The pieces of flesh were, it seems, wrapped in green leaves and surrounded by hot stones. In the same pits liquids could be warmed in pots surrounded by hot stones.

Wool from the sheep was spun, as the many spindle whorls show. As we have seen, remains of a loom were

found. The clothing of the period can be studied on curious thin gold plaques. The women had long gowns with a fine decorated border at the bottom, and shawls, while the men wore trousers and jackets or coats. The women's hair was elaborately arranged—bound in a knot from which the ends hung down, while little curls hung in front of the ear. The men wore their hair neck-length; most of them had beards.

These farmers had to import certain materials which could not be found in Bornholm—first and foremost, iron and salt. Real need must have compelled them to make fairly regular voyages across the Baltic. Moreover, the Bornholm people imported luxury articles of gold, silver, glass and bronze, some in the form of finished products, others as raw materials from which skilled smiths made fine ornaments. Among these are some which copy Central European types, but which in details show a definite local tradition. Bornholm work was inspired by the new "animal style," perhaps introduced by Bornholmers who had been in the Danubian area. We have, on the other hand, ornaments in Central Europe which show strong Scandinavian influence, perhaps introduced by wandering artisans. We strongly suspect that Siberian art greatly influenced the Scandinavian animal style, but local tradition and Roman and Celto-Roman influences also were important elements.

Near the Sorte Muld houses we excavated a curious pit containing some remains of a horse—the cranium and the leg bones. The zoologist insisted that they told a curious story, and in fact it turned out that such remains were typical of the period. Pits or graves containing a horse's skull and leg bones have been found in Central Europe, in South Russia and in southern Siberia. They date back as far as the fourth century A.D.,

but some are later. In the same regions we have, moreover, written traditions, from the ninth century onwards, that people sacrificed horses to their ancestors or to their gods. In the Altai Mountains this custom was practised until recently. The whole horse was not offered, but only the hide, in which were the skull and the lower leg bones. The hide was placed on a long pole and turned toward the east, where the gods lived. The clever head, the quick feet and the hide were included in the offering, but now only the bones remain to tell us about a fascinating period when eastern nomads rushed on horseback through South Russia to Central Europe, where they lived for a century. At that time the Huns and other nomads had relations with the north, and it seems likely that they taught the northerners to sacrifice horses.

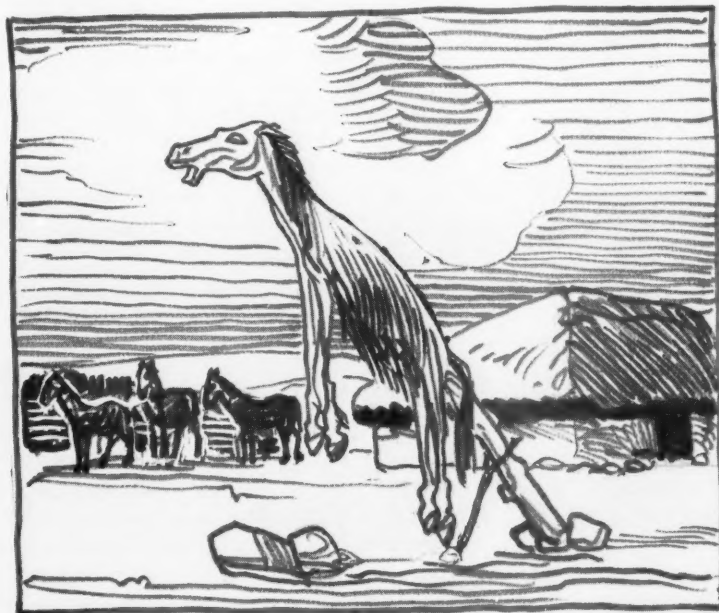
IT IS REMARKABLE that the finds from the settlements in eastern Bornholm all end about A.D. 510. At Dalshøj occupation began about 300 B.C., whereas Sorte Muld had been occupied only since the Roman Iron Age. A few cemeteries also went out of use in the Migration period, but others continued.

At both Dalshøj and Sorte Muld we found evidence that war was the reason for the abandonment of the farms. At both places hoards were found. Dalshøj produced coins ending about A.D. 510, gold rings and a fine brooch. These costly objects had been buried at

that time only six to eight centimeters under the surface. At Sorte Muld similar treasures were found, as well as in several neighboring places; the latest coins are from the reign of the Roman emperor Anastasius, who died in A.D. 518.

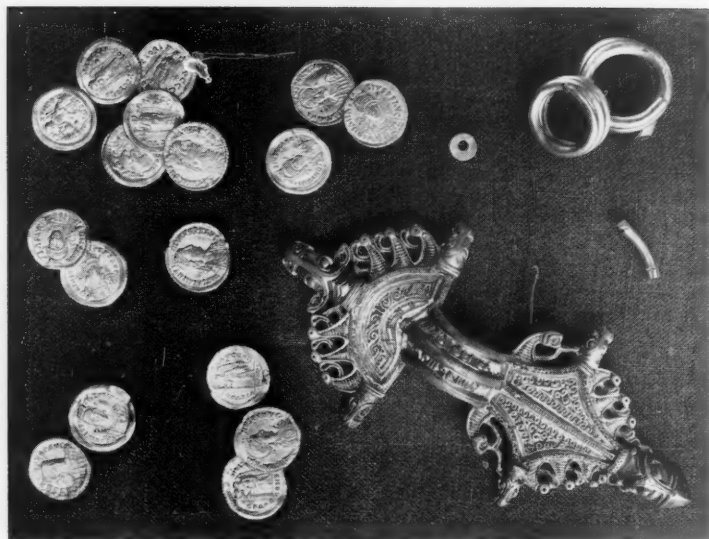
At Sorte Muld several spearheads were found lying here and there, unrelated to graves or houses. They seem to have been remains from a battle. In the big house which had burned down there was found, as we have mentioned, a little heap of charred grain and seeds of weeds. Such a combination is—as Helbaek says—unnatural for farming conditions at Sorte Muld, which is a very fertile field. Seeds of weeds are collected only where the earth is poor; they were not found in the earlier building remains, where grain was found in large heaps. It seems that as a result of the battle the Sorte Muld farm was deprived of its harvest, which under normal circumstances could not have been a poor one, as was shown by the size of the grains.

More convincing evidence of a war, however, is a big hill fort, Gamleborg, at the edge of the barren inner part of Bornholm. It is an isolated rocky hill with a wide view over the southern and eastern parts of the island. Along the edge there is a wall, with an entrance at the west. On the south side, above steep rocks, the wall breaks off. This wall was built in two or three stages. Immediately behind it were found many heaps of fist-sized stones. Within the fort is a cistern, always



Reconstruction of the horse sacrifice at Sorte Muld farm. Drawing by Helge Nielsen.

A SCANDINAVIAN COMMUNITY continued



Hoard found near the farmhouses at Dalshøj: a splendid gold brooch and rings, and gold coins of Byzantine emperors, the latest minted by Anastasius.



filled with water. Potsherds found on Gamleborg show that it could have been used about the time that the hoards were buried and the houses at Dalshøj and Sorte Muld burned down.

There are, as we have mentioned, several other hoards of *solidi* on Bornholm. In the larger of these the latest pieces are one or two coins of Anastasius, just as in the case of the Dalshøj treasure. But some of them contain other precious objects: a large bracteate, a heavy gold ingot or a few smaller ingots, sheath-fittings with punched decoration, thin gold plaques depicting men and women. These treasures, together with the other evidence—the burned and abandoned houses, the hoards buried outside, the grain mixed with wild seeds, the spearheads scattered on the field, the hill-fort—tell a sad story: invasion and war during the time of Anastasius. No one ever returned for the precious objects. Were the people killed or were they taken as slaves? We cannot know. But we can be sure that unless they were forced to do so, nobody would have left these prosperous farms and fertile fields. The coins indicate considerable wealth. We know from later Byzantine sources that one

could purchase a farm and a yoke of oxen and live for a year on nine *solidi*. The Dalshøj farmer owned seventeen of these gold coins.

The fate of Bornholm in the Migration period was not unique. The same events occurred on the islands of Øland and Gotland. Large hoards, some containing *solidi*, have a terminal date of 480 on Øland and about 570 on Gotland, where there seem to have been several invasions. A great many farmhouses were abandoned in ruins, and many fields were left uncultivated.

Earlier I mentioned a tradition that the area where we excavated had long ago been a battlefield. In 1625 the story was written down for the first time. Oral tradition in our days gives exactly the same version. In more than three hundred years the legend has not changed. Let us multiply these 330 years by four, and we are near the date of these events. Another tradition written down in 1625 tells us that the hill fort of Gamleborg was defended by the use of smooth fist-sized stones. One cannot help thinking that these traditions are based on real happenings told to each new generation by the one before.

A CACHE OF BLADES NEAR THE GREAT FALLS OF THE POTOMAC

By W. K. Wimsatt, Jr.

IF THIS REPORT on the finding of a cache of Indian stone blades be allowed at the outset a moment of reminiscence, the event may be described as in a sense the outcome of a quest. The quest began about 1890 when my father spent a summer of boyhood adventures along the Potomac River near Leesburg, Virginia, and White's Ferry. This boy and others landed often on the upstream end of Harrison's Island to pull ears of corn for roasting. The cornfield, forty or fifty feet above the water, and the stony beach below it, at the foot of a dirt bluff, were scattered with Indian artifacts. Potsherds were so thickly strewn that the boys used them for skimming over the water.

The second stage of the quest occurred many years later. Picture a family picnic expedition by rowboat, landing on that same stony beach during midsummer of a year about 1918. The shouts of discovery—the sharp, clean shapes of notched arrowheads and blades, white quartz, brown quartzite, blue rhyolite, standing out between the cobbles of the beach and from the eroded slope of the bluff, the pottery fragments, the small green grooved axes—these images belong, if not to archaeology, at least to one of the most brightly colored spots in the well of memory. Changes in the river channels and currents, beginning with floods during the late 1920's, have built up a mud bank with a growth of small trees which has largely obliterated that stony beach. The same floods and those of the thirties, however, scoured off other parts of Harrison Island at the

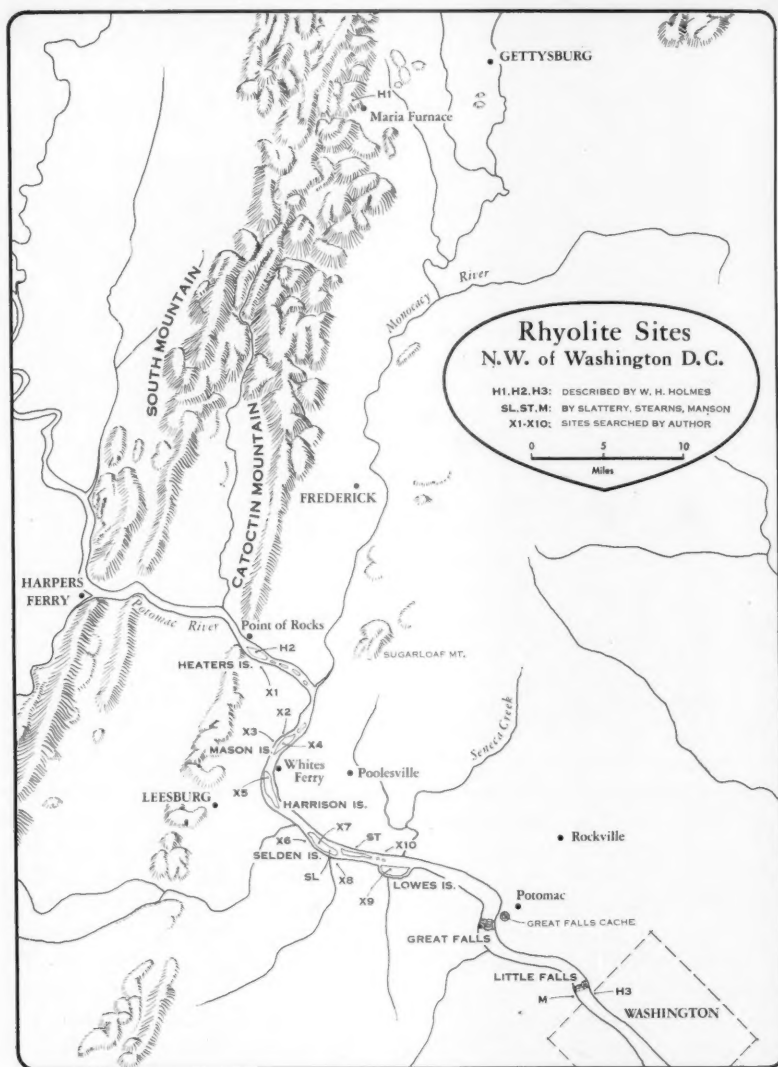
upper end and also slashed out areas upstream on Mason Island and the Virginia shore near it, and downstream on Selden Island and Lowes Island. Since the picnic nearly forty years ago I have returned many times to Harrison Island and to the other Potomac River sites—sometimes in company with the original discoverer, sometimes with other companions, especially Dr. Joseph A. Madden of Washington, D. C.

On that initial stony beach at Harrison Island, along with the notched points and grooved axes we had found brownish, cord-marked, steatite-tempered sherds with lugs. These were quite different from the thinner and harder grit-tempered, ornamentally incised and punched sherds, with heavy appliqué rims, which we found later on Mason Island after the flood of 1937, along with triangular arrowheads, celts and chisels. The scene on Mason Island that year was extraordinary. Parts of human skeletons were strewn across the fields and caught in fences. A cluster of thirty-two refuse "pits" was left standing like a village of small huts or beehives in an area 50 feet by 150 where the water had rushed in, cutting away the softer surrounding loam. These little mounds were heavily compacted of animal bones, antlers, large potsherds, broken artifacts and other cracked stones. On Selden Island the same summer there was a similar scene—a thick litter of artifacts and flaked materials for fifty yards or more along the edge of the field near the river, with petaloid celts and thinner polished knives.

The first documents consulted by the collector of Potomac Indian artifacts will likely enough be the writings of the pioneer Smithsonian archaeologist, W. H. Holmes. In his great monograph, *Stone Implements of the Potomac-Chesapeake Tidewater Province* (Washington 1897), Holmes describes how one kind of stone often used by the Indians along the Potomac had to be brought a considerable distance from back in the mountains. This was rhyolite, a slaty-looking blue or grayish lava, strongly marked with ripply "flow" lines, flecked with grains of white feldspar, and notable

THE AUTHOR, a native of Washington, D. C., holds degrees from Georgetown University and Yale University, and is a professor of English at Yale. He has written extensively on English neo-classical literature and on problems of literary criticism. The present article is his first publication in the field of an amateur interest that began in early boyhood.

The dig described in the article was undertaken by the kind permission of Mr. John E. Powell of Kenwood, Maryland, president of the Great Falls Land Holding Corporation, and of Mr. Roger Collins of Potomac, Maryland. For advice concerning archaeological and geological problems the author wishes to thank Professors Irving B. Rouse and Matt S. Walton, Jr., of Yale University.

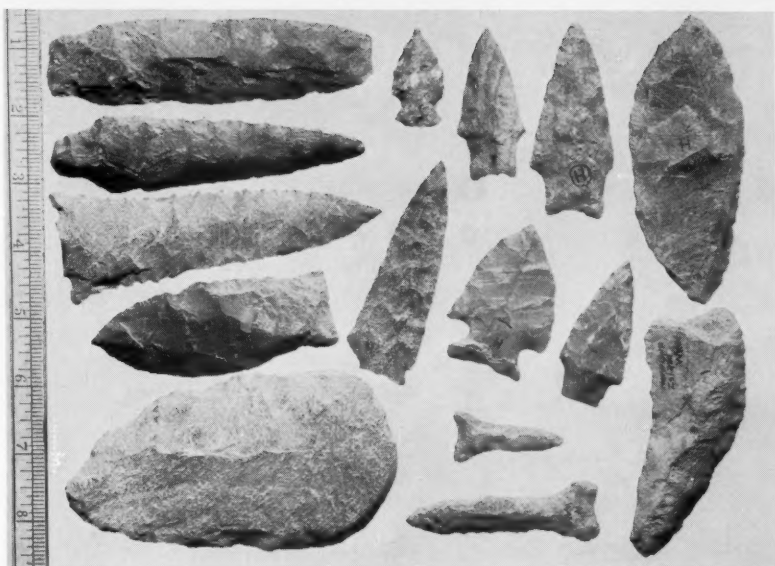


A CACHE OF BLADES *continued*

for the long thin flakes and splinters into which it readily fractures. It was a good stone for spearheads or arrowheads, knives or drills, better than the common Potomac materials, the cobbles and pebbles of brittle white quartz or toughish gray and brown quartzite found along the stream beds. And so it seems to have been very much worth while to the Indians of the Potomac Valley, during some phase of their history at least, to quarry for rhyolite back in the mountains. Holmes reports that they distributed the stone thence throughout twenty thousand square miles of the "Potomac Chesapeake

Province." An early United States Geological Survey furnished him with a map of outcroppings of this rock, as it occurs across Pennsylvania and Maryland in a range of the Appalachians. Holmes found chips in the roadway at Maria Furnace, on a branch of the Monocacy River (H1 on the map), and he discovered that on the steep side of the mountain above the stream the quarry workings extended for several acres. He believed that other quarries existed somewhere in these mountains, but apparently no one has continued his explorations.

Over the course of the years I have succeeded in col-



Rhyolite artifacts: knives, drills, spearheads, arrowheads, from Harrison Island and other Potomac River camp sites between Point of Rocks and Seneca Creek.

lecting from village sites along the Potomac (X1-X10) numerous specimens of all the smaller types of rhyolite artifacts mentioned and illustrated by Holmes, as well as a few very good larger spear and knife blades. The bluff at Harrison Island yielded most of the good larger blades. The village sites have been plentifully strewn with various coarse, rejected, imperfect or broken rhyolite blades, and with innumerable smaller, shell-like curved flakes.

Another type of rhyolite object mentioned by Holmes was the crude chunk or slab. One of these, weighing several pounds, was found on the Maryland shore opposite Mount Vernon, and another on the Patapsco River. I myself once picked up a large, flattish, flaked slab on the Virginia shore about a mile below the entrance of the Monocacy into the Potomac (X3). This turned out to weigh seven pounds. Did Indians make heavier shipments of the valuable material by dugout from that quarry on the upper Monocacy? A smaller residual slab, or core, in my collection, weighing about two pounds, comes from X10 on the map, the high red sandstone bluffs above Seneca Creek. Smaller squarish cores of white quartz and larger, partly flaked off, cobbles of brown quartzite seem much more common at the river sites than the rhyolite slabs. Can this be because the Indians almost always used up the imported semi-exotic rhyolite? And because this stone tended to split in such a way as to make it usable to the last splinter?

Whatever the answers, we come now to consider one other kind of rhyolite find described by Holmes—the cache of large thin blades ("blanks") brought to village workshops or near them and stored underground to be kept moist and fresh for future refinement. Holmes names five caches of such rhyolite blades in the whole area which he studied. The finest of these consisted of eight very narrow and thin straight blades, the longest eleven inches, found on Frogmore Creek near Baltimore. Two other lots lay within the area of the present study (H2 and H3 on the map). That at H2 consisted of a "dozen or two" somewhat roughly shaped flakes or spalls found strewn about an anvil stone which was exposed after a heavy flood. That at H3 consisted of about a dozen rather short and broad specimens. But caches of blades are not easy to find. During the years of my own intermittent collecting, I had never found anything like a cache—not even a single blade or fragment of a blade long enough or heavy enough to distinguish it from the run of village blades and rejects.

THE CACHE which forms the subject of this report was found only a few miles from Holmes' Chain Bridge site (H3) but not on a village site and not even in the river bottom. The place is a high slope in a field about a mile and a quarter from the Great Falls of the Potomac on a property known as the Gold Mine Tract. We learned later that this field had lain for many years in

A CACHE OF BLADES *continued*

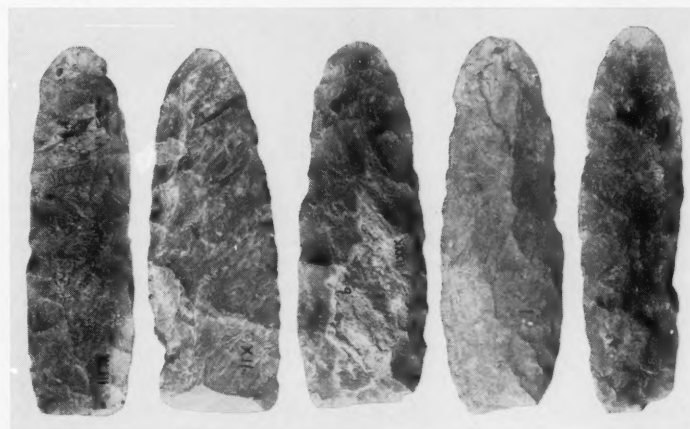


Stack of sixteen undisturbed blades, the bottom of the cache, as it appeared when first uncovered. *Right:* The sixteen blades removed from the site but not yet separated from the clay.



pasture, up to about 1952, when it lost some of its surface soil through being stripped of its turf, no doubt for the benefit of nearby real estate developments. It was then plowed for three successive years, and the slope on which the cache was buried may have lost a few inches more by erosion. On January 2, 1956, the field stood open in winter wheat. Enter onto this scene Dr. Joseph A. Madden and companions, on a shooting expedition. The other shooters passed by, but Dr. Madden saw with amazement, then he stopped and collected, eight long slaty-looking, grayish-bluish flakes or blades lying in two clusters on the surface in an area not greater than seven feet square. Early the next morning I was guided to the spot. The ground of course was deeply frozen. But using a light hoe to scrape about in the loose dust on the surface, I uncovered one more handsome blade.

Other duties, other interests, other ideas crowded those blades out of mind during the next six months. It was not until June 30th that a return was made—and then not really with very elaborate hopes. We went, family picnic style, of a late afternoon, with the permission of a sympathetic farmer to devastate a certain limited area of his wheat crop. At the very first approach a hopeful and interesting sign appeared. What had been the surface of the field in January was no longer the surface: erosion under the spring rains had already brought to light, a few paces from the original spot, a welcome object in the blade designated as No. X. We had with us, my wife and I and two little boys, only a light garden spade, but we began poking cautiously into the soft dirt—with electrifying results! The large blade shapes, slightly damp and blue with a metallic luster from the micaceous soil, came flopping into sight in rapid succession. It was like pulling fish from a well stocked pond. Within fifteen minutes we had half a dozen more blades, one of them very long and heavy (No. XII). I



Blades selected to illustrate the range in dimensions and in degree of refinement of the whole collection discovered at the cache site.

continued serious digging July 1-4, with the help of Dr. Madden, my brother Mr. James M. Wimsatt, and my wife. Thereafter I returned twice more. In the end I had dug an area twenty-four feet by sixteen, to an over-all depth of about eight inches, but deeper in a fairly large inner area.

We recovered altogether forty-nine entire or nearly entire blades, and large fragments of two others. The discovery of a nest or tight stack of sixteen blades at a depth of 8-11 inches, undoubtedly the bottom of the cache, just as the Indian workman had placed it, was the third fine moment of our quest. We exposed the nest carefully and photographed it *in situ*, then after digging under it, picked it off like a head of cabbage and brought it home for further study.

Separate blades and fragments lay strewn out along the line of the plow furrows and across several furrows to one side of the cache, at a depth of eight inches or less. Almost all the blades were found within an area

of about eleven by four feet. The pieces lying farthest out were at a distance of about sixteen feet from the cache and nearly at the surface. The two groups of blades illustrated are chosen to exhibit the extremes of variation as well as the finer specimens. The total weight of the blades and fragments is about seventeen pounds.

What, if anything, can be said about the date when these blades were buried? We found a few quartzite and chert arrowheads and other scraps of flaked stone on the surface of the field, but no other traces of Indian occupation. How much can be inferred from the fact that the blades of the cache were made of rhyolite? The symbols **M**, **SL** and **ST** on our map represent excavations undertaken during recent years in the immediate area of the cache. Reports from the excavators—Carl Manson, who dug at a small site "of great antiquity" just above the Little Falls of the Potomac; Richard Slattery, who worked at a site of "considerable antiquity" on Selden Island; and Richard Stearns at the Hughes site on the

A CACHE OF BLADES *continued*



The author at the cache site, July 4, 1956. The large spades were used for the refilling.

Maryland shore, a village believed to be of rather recent date—tend to suggest that the use of rhyolite in the region was earlier rather than later. But a different conclusion might well be argued by a count of the types of rhyolite projectile points appearing throughout the region. One of the most frequent types of rhyolite point found on the Potomac sites is the small triangle, and this is now generally thought to be a trait of the latest period for most of the eastern United States (Clifford Evans, *A Ceramic Study of Virginia Archeology, with Appendix . . . Projectile Points*, by C. G. Holland [Washington 1955]). We fall back, then, upon the simple fact of the cache itself for the most specific indication of a date. We are told by William A. Ritchie (*The Pre-Iroquoian Occupations of New York State* [Rochester 1944]) that caches of blades are a manifestation of the Early and Middle Woodland horizons of Indian culture in the East, with a middle date perhaps about the beginning of the Christian era.

WHAT IS THE EXACT CHARACTER of these large rhyolite blades, their role in the economy and relation to the other forms of rhyolite objects? The theories of W. H. Holmes about the large biface blade were first developed not at Maria Furnace but at the vast quartzite cobble quarry along the sides of the ravine at Piney Branch in Washington, D. C. This was the quarry which Holmes excavated most extensively. From the tons of evidence available there he formulated the theory that all Indian quarries of flakable stone were operated solely for the purpose of producing large thin bifaces, from which practically all specialized flaked tools were derived. Holmes' theory of the blank biface has been widely accepted for about sixty years, but a few years ago it was severely criticized by a careful geologist, the late Kirk Bryan (*Flint Quarries—The Sources of Tools . . .*

[Cambridge 1950]). Basing his theory mainly on a restudy of three flint quarries, in Oklahoma, Texas and New Mexico, Bryan argued that such quarries were not only sources of material but also factories where the Indians brought pieces of bone and wood for shaping and where also, when a waterway was close enough, they cut wood for canoes with stone axes. The large flint bifaces found at the quarries were not, then, rejects but two-bitted axes for chopping wood. When broken across, as they frequently were, they served as cores convenient for turning into scrapers. By a reversal of Holmes' logic Bryan ends by completely dismissing the theory of the "blank" blade. Perhaps the too great sweep of either theory is suggested in the very confrontation of each with the other.

Of the forty-nine long thin bifaces recovered from our cache, not a single one, I believe, could plausibly have been derived from a thick biface. Rather they have all been derived by lateral secondary chipping from long and thin, sometimes slightly curved, flakes which the quarry workman was able to strike from a larger mass. The large longitudinal facets show this character of the blades very clearly.

Finally, what of the ultimate purpose for which these large thin bifaces were intended? The relative lightness of the specialized blades which I have collected from the river village sites makes it somewhat difficult for me to imagine their derivation and reduction from heavier blades of the order found in the cache. Perhaps the larger blades of the cache type are in fact *not* connected with the smaller village work. Perhaps they had a different context, a different function. Perhaps they come even from a different time and culture.

About a third of a mile to the west of the cache, and near the woods that extend up from the river just above the Falls, stands a large brick house, apparently on the original site of the plantation. A farmer told me that just behind that house there is a place, now grown up with trees, where in days gone by all kinds of Indian stone points were found—that is, a village site or workshop. What kind of spot did Indian couriers or stone-workers choose for hiding a package of valuable large rhyolite blades, perhaps brought down the Monocacy and the Potomac by dugout to the Falls, perhaps carried overland seventy miles? Would they bury these negotiable, workable objects inside a hut in the village? Beneath the workshop floor? Or at a certain spot not too far out beside the trail? Perhaps we shall never be able to answer such questions with complete confidence. These and others tease the imagination of the digger as he packs his tools.

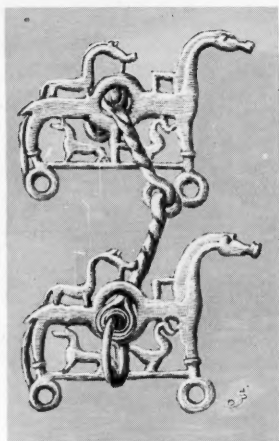
By Clark Hopkins

Equally startling, perhaps, was the

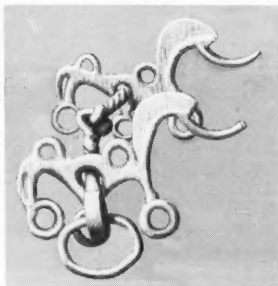
It is only recently that the still earlier civilization of eighth-century Etruria has been investigated and the

broad outlines of the first Etruscan settlements brought into view. The Etruscans landed just north of the Tiber, probably after 800 B.C. They came from the east—from Lydia, as Herodotus suggests, or from the islands of the Aegean, or from northern Syria. They brought with them a language whose inscriptions are written in Greek letters, but which have not yet been deciphered. The settlers moved inland to Veii, to

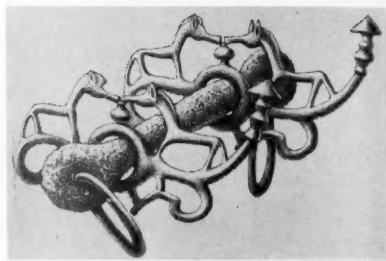




1. Snaffle bit from Volterra with cheek-pieces in the form of horses and water birds. From O. Montelius, *La civilisation primitive: Italie centrale* II, 1, plate 171, 23.



3. Bit from Corneto-Tarquiniia with cheek-pieces in the form of frisky horses. From Montelius, *op. cit.* II, 2, plate 285, 14.



2. Straight-bar bit from Vetulonia with stylized horses standing on the curve of the cheek-piece. From Montelius, *op. cit.* II, 1, plate 190, 2.

ETRUSCAN ART

continued



Falerii in the Tiber Valley east of Rome, and to Volsinium, where later lay the great Etruscan sanctuary of Voltumna. The most important trade route led to the north through Clusium and Arretium, Florence and Bologna, to Central Europe by the Brenner Pass. By this route amber was brought from the Baltic.

In the seventh century the empire was pushed southward across the Tiber to Praeneste and northward to include the tin mines beyond Vetulonia, and the copper and rich iron deposits of Elba. The sixth century saw half of Italy under Etruscan control—as far south as Naples and Capua (only Cumae resisting), as far north as the Po.

FOR OUR OPINION of the origins of the Etruscans and their homeland much depends on our interpretation

4. Bronze cheek-piece of a bit from Luristan, representing a horse. From A. U. Pope, *Masterpieces of Persian Art*, plate 10.



5. Rein-ring from Luristan with ibex head, demons and standing animals. From *Ancient Art in American Private Collections* (Fogg Art Museum) plate 25.

6. Right: Cauldron with lion and griffin heads from Praeneste. From H. Mühlstein, *Die Kunst der Etrusker* (1929) figure 10.



of their fine bronze objects. The immigrants brought with them the technical knowledge of hammering and welding bronze. Examples of the new skills are shown in belts and cauldrons, decorative cheek-pieces of horse-bits, swords and helmets. These show resemblances between Etruscan work and that from Luristan in north-west Persia and the Hittite country of Asia Minor on one side, and the craftsmanship of Egypt, Syria and Cyprus on the other. Within central Italy the development of these special utensils and implements represents one phase of the flowering of the Etruscan artistic genius.

The elaborate bit from Volterra (Figure 1) represents a whole group of Etruscan horse-bits with cheek-pieces in the form of horses and water birds (see also Figure 14). It has a jointed snaffle bar and stylized cheek-pieces equipped with bridle rings above and below for the straps which ran over and under the horse's nose. Less usual is the pattern which

appears in this particular bit—horse standing on horse. Clearly here two artistic traditions meet, one in which the bar of the cheek-piece supports the small figure of a horse (Figure 2), the other in which the bar itself is fashioned into the form of an animal (Figure 3).

In the East, as far as I know, horse is never piled on horse, but the Luristan bronze bits often have cheek-pieces in the form of animals (Figure 4). On the other hand, the rein-ring or the cheek-piece ring on Luristan bits may be adorned with animals around the edge (Figure 5). It is the Etruscans who pile one animal on top of the other to make a design—over-elaborate, perhaps, but striking.

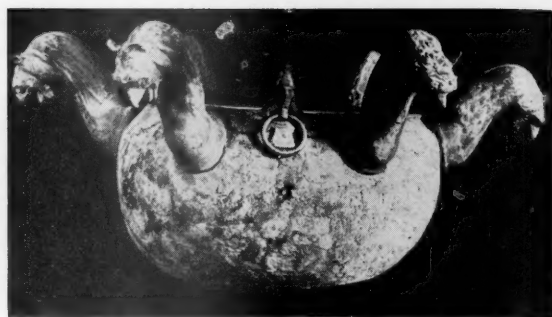
In the second phase of Etruscan art, when the lion and the griffin largely replace the horse and the water bird as popular motives, the same development towards elaboration occurs in the ceremonial cauldrons. In the East a double-headed animal is not uncommon. A new and

rather distinctive touch is added in Etruria, as in the famous cauldron from the Barberini Tomb (Figure 6), where the heads of two lions and two griffins protrude from the vessel. The six-headed cauldrons, which became almost the rule in Etruria, are a step beyond the usual eastern type and the earlier four-headed Etruscan bowls of Falerii. Still another ornament is added to a cauldron of this kind from the circle grave of Vetulonia (Figure 7)—an attachment with an Assyrian winged sun-disk figure to support the handle ring.

IN RECENT YEARS Clark Hopkins, Professor of Classical Art and Archaeology at the University of Michigan, has been engaged in a study of the prehistoric invasions of Greece and Italy. The present article and others which have appeared in scholarly journals are the result of that study. Before the war Professor Hopkins' work was largely in the Hellenistic field. He participated in the important excavations at Dura-Europos (Syria) and Seleucia-on-the-Tigris (Iraq).



8. Griffin head from cauldron at Chiusi. In the later period the griffin raises its head, its crest towers aloft and an eagle scream of triumph seems to issue from its beak. From Mühlestein, *op. cit.*, figure 112.



7. Vessel decorated with six griffin heads and an Assyrian winged figure, from the Circle of the Cauldrons in Vetulonia. From Mühlestein, *op. cit.*, figure 107.



9. Bronze shield from the Warrior Tomb at Corneto (ca. 725-700 B.C.) with zones of concentric circles and studding. From Montelius, *op. cit.* II, 2, plate 287, 6a.

ETRUSCAN ART

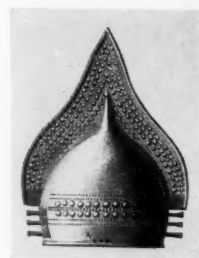
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The griffin head develops in time to the magnificent type illustrated in Figure 8.

While horse-trappings and ceremonial vessels received the attention of the Etruscan artist, arms and armor were not neglected. Although the introduction of the circular bronze shield was probably innovation enough to startle the native Italians, very early the bossing or studding technique was employed to enhance the ornamental effect (Figure 9). Swords have "antennae" pommels, with spirals curving up and inward, and the crests of helmets are raised and enlarged to support additional

bands of bossed decoration (Figure 10). In this period there are no swords in the East like these Etruscan swords with spiralforn pommels. On the other hand, the palmetto design with upturned spirals originated in Egypt and became a common ornamental border design in the gold work of the Middle Etruscan period (700-650 B.C.) in Italy (Figure 11). Its adaptation to the sword hilt is one of the striking innovations of the second phase of Etruscan art.

Another most interesting ornament was added to a helmet from Tarquinia, dated 700-650 B.C. (Figure 12). Above the horizontal embossed



10. Sword and helmet from the same grave in Corneto. From Montelius, *op. cit.* II, 2, plate 277, 6 and 9.

bands of the lower part of this striking head-piece rise the heads of long-necked birds with sweeping bills, separated by designs of concentric circles. The basic concept, I believe, is taken from the cauldrons with protome heads. As the belly of the cauldron represents the body of the many-headed animal, so here the horizontal bands of the helmet represent the common body of the bird from which emanate the heads.

The entire bird appears on a bronze belt from Perugia (Figure 13). The belt adds details: a crest on the head, short legs, heavy body. The late Dr. Josselyn Van Tyne, professor of zoology at Michigan, suggested that the bird is the pelican, the only short-legged water fowl that wears a crest. The bird also appears on the cheek-piece of an early horse-bit from central Italy (Figure 14). Here it is reduced to a long bill, a round head with central eye, and a great S-shaped curve which continues in one sweep to give form to the body. The fastening to the bit represents the legs.

THE ETRUSCANS are still an enigma in the panorama of history. Their art shows genius in its striking elaboration and the bold adaptations and stylizations of bird and animal forms. The Etruscan artists delighted particularly in lavishing their skill not only on horse-trappings and accouterments for war, but also on ornamental belts and ceremonial vessels. It was obviously in the spheres of war and religion that they were most eager to overawe and impress the native Italians and Romans.

This early art offers one further suggestion: that its origins are to be found in the eastern Mediterranean, and that the Etruscan artists were borrowing indirectly from Egypt and Luristan, probably through the island of Cyprus and the Hittite country of northern Syria.



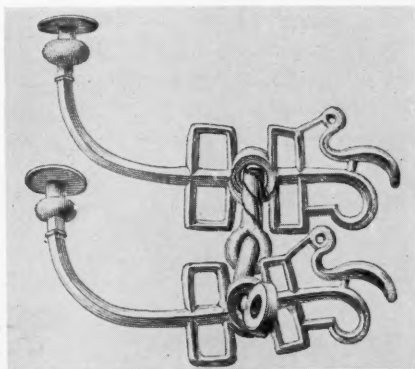
11. Left: Gold plaque from the Bocchoris tomb with palmettos in border at upper left. From Montelius, *op. cit.* II, 2, plate 295, 1a.



12. Above: Helmet with bird and disk ornament from a cremation tomb at Corneto. From Montelius, *op. cit.* II, 2, plate 276, 11.



13. The Etruscan pelican as it appears on a bronze belt found at Perugia. From Montelius, *op. cit.* II, 2, plate 251, 8.



14. Stylized pelican ornamenting the cheek-piece of a bit from central Italy. From Montelius, *op. cit.* II, 2, plate 376, 5.



Sarcophagus from Beirut at the Smithsonian Institution, Washington, D. C. On the end shown, the moldings, the garland and the bunch of grapes were prepared for carving but were not completed. The tablet in the middle of the long side was never inscribed; presumably the name of the deceased was commemorated elsewhere in the monument containing this sarcophagus. Photo courtesy Smithsonian Institution.

FOUR ROMAN GARLAND SARCOPHAGI IN AMERICA

By John B. Ward Perkins

Director of the British School at Rome

IT IS OFTEN THE MOST FAMILIAR MONUMENTS that receive the least attention. One which is seen daily by many hundreds of visitors to Washington, but which has never been studied or published, is the large marble sarcophagus that stands on the grass outside the Smithsonian Institution. It is one of a pair that were acquired in Beirut, Lebanon, by Commodore Jesse D. Elliott, U.S.N., and brought to the United States in 1839 aboard the U.S.S. *Constitution*. It is not inscribed; but the name, Julia Mam(m)aea, on the other sarcophagus of the pair is the same as that of the consort of the Emperor Alexander Severus, and it is not altogether surprising, therefore, that its companion piece should have been thought to be the burial place of the emperor him-

self. On its arrival in the United States, Commodore Elliott presented it to the National Institute to serve as a final resting place for the remains of President Andrew Jackson. Its companion piece he presented to Girard College near Philadelphia for the use of its founder, the distinguished banker and philanthropist, Stephen Girard. Of the two destined recipients, Jackson declined the honor, which he felt would not be in keeping with his republican principles; and after being exhibited for a time at the Patent Office, the sarcophagus was handed over to the Smithsonian Institution in 1860. Girard's principles were not put to the test since he had died eight years before the sarcophagus was brought to the United States; in any case he too was buried elsewhere.



Above: The Smithsonian sarcophagus, back and left end. Part of the back has been carved, but the moldings are still as they were when the sarcophagus was received from the quarry, and the ram's head at the angle (presumably not visible when the sarcophagus was in place) has only been roughed out. The dark patch on the short side is a modern repair to the hole through which the tomb was rifled in antiquity; dark spots on the lid in both views of the sarcophagus are remains of iron cramps by which the lid was sealed to the body. Photograph courtesy Smithsonian Institution. *Left:* Detail of sarcophagus lid. The figures of the deceased and his wife, on a funerary couch, were roughed out but never completed; nor was the scale pattern fully carved.

After standing for many years in Girard College the sarcophagus was recently transferred on permanent loan to Bryn Mawr College, where it now stands (with its lid reversed) in front of the Deanery, near the entrance to the Library.

The two sarcophagi purchased by Commodore Elliott are of identical material and workmanship. The material is the fine blue-tinged, crystalline marble that was quarried on ancient Proconnesus, the island of Marmara ("Marble Island") near the entrance to the sea of the same name. This marble, though little used for the finer types of statuary, was exported all over the Roman world for architectural and decorative purposes, and many architectural members such as columns, capitals

and bases were already roughed out before shipment. This was done, no doubt, in order to reduce to a minimum the freight charges on a very heavy commodity, and (as any museum curator is aware) the same reasons would have applied with equal force to the preparation and shipment of marble sarcophagi. The carving of fine, fragile detail had to await the arrival of the sarcophagus at its destination; but it was regular practice to hollow out the trough and to trim the lid to approximately its final shape, and in the case of at least two widely distributed groups of Roman sarcophagi the process was carried still further, the actual finished design being sketched out on the marble surface before despatch. One of these groups is that of the Proconnesian



Sarcophagus from Beirut at Bryn Mawr College (formerly at Girard College). The carving of the front is at roughly the same stage as the ends of its companion in Washington, with no attempt at fine detail on moldings, garlands or pendants. Photograph courtesy Girard College.

garland sarcophagi, to which belong the pair acquired by Commodore Elliott. The other consists of the Attic sarcophagi of the second and third centuries, which were made of Pentelic marble and were also shipped all over the Mediterranean (recently discussed in the *Journal of Roman Studies* 46 [1956] 10-16).

THE FORM in which the Proconnesian sarcophagi were despatched from the quarries is illustrated by another sarcophagus from Beirut, now in the grounds of the American University in that city. There were minor variations in detail from one example to another: instead of the central *tabella ansata*, intended for an inscription, there might be another rounded boss; the upper molding was sometimes omitted or the back might be left plain. But the basic pattern remained surprisingly uniform, and it determined within clear limits the appearance of the finished product. This was to consist of a repeating design of garlands of fruit or foliage, bound with ribbons and upheld either by animals' heads or by human figures standing on brackets or pedestals. The round bosses above the garlands might be carved as rosettes, and the pendant, heart-shaped feature as a bunch of grapes. By cutting more deeply into the marble it was also possible to introduce secondary features

(trailing ribbons, flowing hair) that escaped from the rigid framework of the design; or in extreme cases the garland design might be scrapped altogether on one or more faces and another substituted, simply by cutting the whole face of the marble back to a new surface. This has happened to two of a group of three sarcophagi from Tripoli (Trablus) in Syria, all now in the museum at Istanbul (see Mendel, *Catalogue des sculptures grecques, romaines et byzantines* i, no. 26; iii, nos. 1159, 1170). All three are of Proconnesian marble and, as the roughed-out designs on the backs show, they were prepared for completion as conventional garland sarcophagi. But only one was so finished, and that with a depth of carving which gave the sculptor considerable latitude in elaborating the basic design. The visible faces of the other two were completely transformed, one being carved with a representation of the story of Hippolytus and Phaedra, clearly derived from contemporary Attic models, the other with a portrait of the deceased, a lady, reclining on a funerary couch and attended by a maidservant. Neither would be recognizable for what it was originally intended to be, were it not for the tell-tale design on the back and, in one case, on the ends also. Such extremes of treatment were of course exceptional, and were possible only where there were local

FOUR SARCOPHAGI *continued*



Inscribed panel in the middle of the front of the Bryn Mawr sarcophagus. It reads: IVLIA.C.FIL.MAMAEA.VIX.ANN.XXX (Julia Mam(m)aea, daughter of Caius; she lived thirty years). Photograph by C. Vermeule.



Back and right end of the Bryn Mawr sarcophagus (the lid is reversed). The carving is substantially uniform except for the rear left corner, which must have been invisible when the sarcophagus was in position. Photograph by C. Vermeule.

craftsmen of sufficient skill and originality to substitute their own ideas for those implied in the schematic garland design. The normal practice was to accept this ready-made design and to elaborate it within the limits that it imposed.

A common feature of these sarcophagi is that one or more faces may be left uncarved or partly carved. Very often there is a plausible explanation. In the position which the finished sarcophagus was intended to occupy within the tomb chamber, one or more faces might be wholly or partly invisible, and it would be reasonable to treat these more summarily than the exposed faces, or even to leave them rough, as received from the quarry. On Commodore Elliott's pair of sarcophagi one of the long sides is more highly finished than the other and must have faced the front; and when it is observed that one of the rear corners on each is carved in some detail whereas the other is barely roughed out, it is tempting to imagine the two sarcophagi as having stood facing each other in a mausoleum or underground tomb cham-

ber. There are, on the other hand, many small discrepancies of treatment for which we can hardly hope to know the reason. We shall never know, for example, why the Washington sarcophagus was not inscribed, or why the relief on the lid was blocked out but never carved.

AN IDEA of the range of the finished products may be had by comparing Commodore Elliott's sarcophagi with one now in the Chicago Museum of Natural History. It is said to have been found at Ramleh, a suburb of Alexandria, about 1888, and is almost certainly to be identified with a sarcophagus picturesquely if erroneously referred to as "the sarcophagus of Cleopatra," which is recorded by Breccia (*Le musée gréco-romain d'Alexandrie au cours de l'année 1922-23*, page 17) as having been exported from Alexandria to America at the end of the last century. The designs on the ends resemble that on the front, except that the figures on the pedestals are replaced by clumsy half-bucrania. The back is plain, a feature which distinguishes the majority



Sarcophagus from Tarsus at the Metropolitan Museum, New York. Another variant of the same basic design. The body, though finished locally, follows the conventional models closely; the lid is more fanciful. Photograph courtesy Metropolitan Museum of Art.

FOUR SARCOPHAGI *continued*

of the Alexandrian sarcophagi from those found in Asia Minor and Syria (which were regularly prepared for carving on all four sides) and which indicates an awareness of local requirements on the part of the exporting workshops. There can, on the other hand, be no doubt whatever that the detailed carving was done in Alexandria itself. Features that are characteristic of, and in some cases unique to, the Alexandrian series are the pedestals, the draped figures at the corners, the long, bolster-like knots above the figures, the masks above the garlands, the pair of vine leaves on the branches of grapes and the bucrania on the ends. This is the work of an Alexandrian sculptor; and when it is noted that, of the thirty recorded marble sarcophagi of the Roman period from Alexandria, twenty-nine are Proconnesian garland sarcophagi, it will be seen that the workshops engaged in their production can have played no inconsiderable part in the artistic life of the Roman city.

Another garland sarcophagus of Proconnesian marble can be seen in the Metropolitan Museum of Art, New York. It was found at Tarsus, in Cilicia, and was presented in 1870 by the then U.S. Consul in that city, Abdo Debbas; but although it has the distinction of being the first gift donated to the museum, it does not seem ever to have received more than passing mention



Back view of the Metropolitan Museum sarcophagus. It can be seen that although the front was elaborately carved, the back was left as it came from the quarry. Photograph courtesy Metropolitan Museum of Art.

in the handbooks to the collections. Its attribution to the Proconnesian series is firmly established by the design on the back, which is that carved at the quarries, without any later reworking. The other three faces, too, are characteristic of the Proconnesian series—garlands of leaves and fruit upheld by Victories at the angles and, in the middle of the long face, by Cupids; the figures stand on molded brackets, and the design is completed by Medusa masks, a *tabella ansata* (uninscribed), bunches of grapes and ribbons. The lid is unusually elaborate, with figures in the gables and on the acroteria, and a crude but lively hunting scene along the front border. A curious feature is that the inverted scale pat-



Right end of the Chicago sarcophagus. The curiously clumsy bucrania (ox skulls) are characteristic of the Alexandrian series. Photo courtesy Chicago Natural History Museum.

Sarcophagus from Ramleh (Alexandria) at Chicago Natural History Museum: view of the front. The detail both of the layout, with figures standing on pedestals to support the garlands, and of the carving is characteristic of the garland sarcophagi of Alexandria. Although this sarcophagus was imported already roughed out to the form illustrated by the back of the Metropolitan example, the subsequent carving was done locally. Photograph courtesy Chicago Natural History Museum.

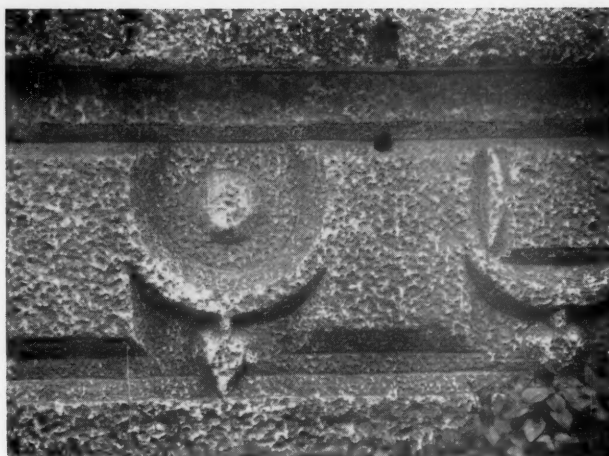


tern on the lid has been left unfinished, with different parts of the design left at three successive stages. Here is proof (if such were necessary) that this sarcophagus too is, in detail, the work of a local sculptor.

The striking difference between the clumsy improvisation of the lid of the Tarsus sarcophagus and the comparative assurance of the carving of the garland design on the body indicates clearly one of the principal reasons for the widespread popularity of these Proconnesian sarcophagi. Even at the hands of a relatively unskilled local workshop the finished product could be quite impressive. Furthermore, if for any reason it was impracticable to finish carving the design, the sarcophagus

could be, and frequently was, used in its unfinished state, either polished to a uniform surface or else left rough, just as it came from the quarry workshop. Of the large group of Proconnesian garland sarcophagi recently excavated by Professor Mansel in the west cemetery of Perge, in Pamphylia, only three were carved; all the rest were used plain. The quarry design even came in time to achieve a considerable popularity in its own right, and was copied in local materials in Asia Minor and Syria and Egypt.

Very few of these sarcophagi are closely datable. In round figures they run probably from the second quarter of the second century (one of the earliest must be that



Detail of a Proconnesian garland sarcophagus at the American University, Beirut, as it was received from the quarry; note the central feature (extreme right) prepared for carving as an inscribed panel. The holes for metal cramps fastening lid to body show that, though unfinished, the sarcophagus was used.

FOUR SARCOPHAGI *continued*

of Caius Julius Celsus Polemaeanus in the tomb chamber beneath the Library at Ephesus, which was completed about A.D. 135) until about the middle of the third century. They were thus roughly contemporary and shared the market with their principal rivals, the Attic sarcophagi. A comparison between the distributions of the two groups throws light on the pattern of interprovincial commercial relationships within the Roman Empire. Attic sarcophagi are found to the exclusion of Proconnesian in mainland Greece as far north as Salonica (where, however, there are also local copies of garland sarcophagi) and in Cyrenaica, but they were virtually excluded from Egypt and from the districts adjoining the Sea of Marmara, Thrace and Bithynia. In Asia Minor and Syria there was a considerable overlap, and there is evidence of workshops handling sarcophagi of both groups. In the west a few Proconnesian garland sarcophagi reached Rome and central Italy, but not in anything like the same numbers as their Attic rivals. The latter were in common use in Rome and in the Adriatic coastlands, and are occasionally found even farther afield, in Spain, Africa, Sicily and southern Gaul. In the west the heyday of Proconnesian production came rather later, notably in northern Italy and Gaul. But these later Proconnesian exports (fourth and fifth centuries A.D.) were plain chests without any garland pattern; the lid was normally, though not invari-

bly, prepared in the traditional gabled shape, with acroteria at the angles.

THE STUDY of Roman sarcophagi is usually based on considerations of subject matter and style. But these garland sarcophagi from Proconnesus and their contemporaries from Attica serve to remind us that the sculptor of Roman times belonged to a complex and highly organized society, and that his work was often conditioned by material factors which might at first sight seem to be of little direct concern to the art historian. In this case it was the organization of the marble trade that provided the framework for a system of production on a scale and with a degree of standardization unprecedented in the history of Classical art. The impact of this system was felt over a wide field. Not only must the preparation and export of these sarcophagi have been a substantial item within the economy of the provinces concerned, but they must have resulted in the employment of large numbers of craftsmen both at the quarries and at the importing workshops. Moreover, the fact that the quarries were located in Greek lands was an important element in the maintenance and propagation of a conservative but still vigorous tradition of Greek craftsmanship. It would be hard to exaggerate the importance of such factors in shaping the development of Classical art in its imperial Roman phase.

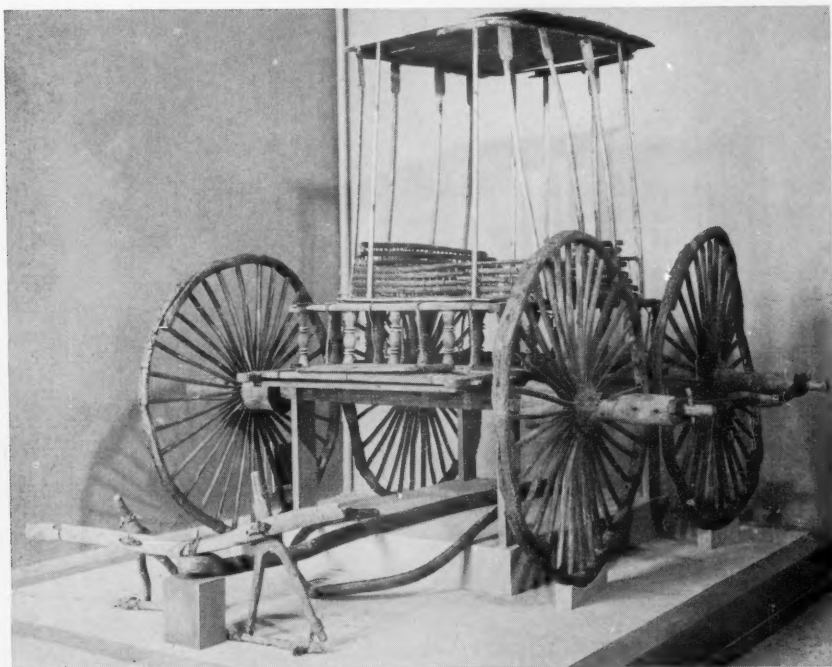


By Richard N. Frye

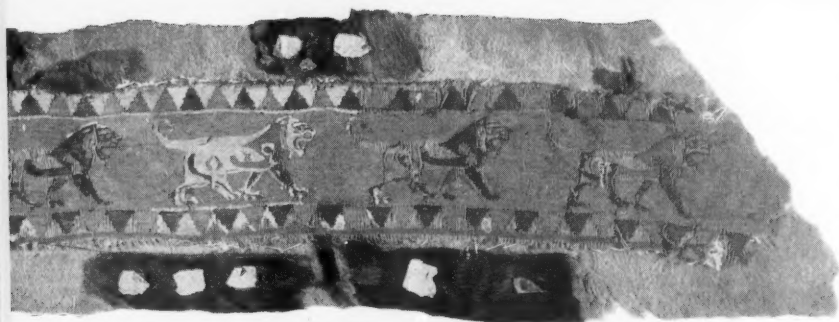
TREASURES

OF THE HERMITAGE MUSEUM

Richard N. Frye, Aga Khan Professor of Iranian at Harvard University, has been a student of the Middle East for many years and has made several trips to Persia and Afghanistan in search of Middle Persian (Pahlavi) inscriptions. He recounted some of his adventures in *ARCHAEOLOGY* 2 (1949) 186-192, and 7 (1954) 114-118. In 1955 he made an extensive trip through the U.S.S.R., including Central Asia, and in August 1957 he again traveled in that country. To Professor Frye's good offices and to the kindness of the Director of the Hermitage Museum we owe the photographs shown here.



Four-wheeled wooden cart found in Kurgan 5, Pazyryk, in 1949. Note the complicated construction of the body, and the wheels with finely worked hubs and spokes.



Woolen tapestry strip sewed on leather to form the breast strap of a saddle cloth. The lions are worked in bright colors (blue, brown, red, white and yellow) on a blue background. The triangles are blue and brown. From Kurgan 5, Pazyryk.

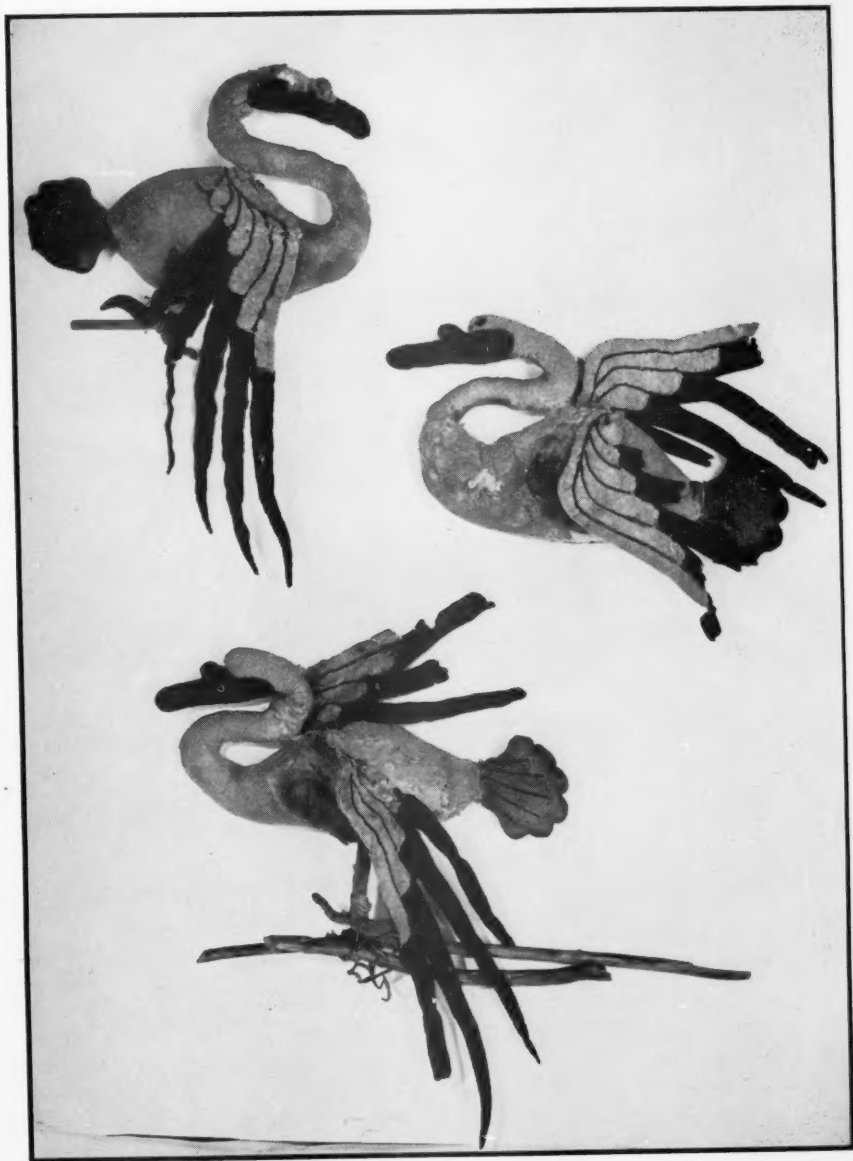
HERMITAGE TREASURES continued

THREE years ago the world-famous Hermitage Museum in Leningrad opened to the public seven new rooms in its section on primitive cultures, with exhibitions of the culture and art of the ancient nomads of the Altai Mountains. These objects came primarily from the excavations of S. I. Rudenko (1947-50) in five kurgans, or burial mounds, at Pazyryk in southern Siberia. The objects in the burial chambers had been preserved intact from some time between the fifth and the second centuries B.C. They were found by Soviet archaeologists in a kind of cold storage vacuum under ground. After being unearthed they were brought to the museum. Rudenko was hardly exaggerating when he described the finds as of immense importance. The contents of Kurgan 5, excavated in 1949, are of unusual significance, for in this kurgan was found the oldest clipped pile carpet in the world, of Near Eastern or Central Asian provenience (shown in the *Illustrated London News* of July 11, 1953, page 71, and January 1, 1955, page 26). In the same burial chamber were found large fragments of a magnificent felt tent-hanging, twice the height of a man, which is now exhibited in the museum.

Less spectacular but also of interest and importance were the mummies of a chieftain and his wife who were buried in the kurgan. Outside the burial chamber, along with a number of horses, all slain for the burial, was found a four-wheeled cart. When discovered, the cart was in fragments; later it was painstakingly reconstructed and set up in the museum, as shown in the illustration. Whether this cart was intended for general use by the

chief, or for his wife alone, or whether it was a funeral carriage, is a matter of conjecture. The absence of an iron rim on the wheels indicates the relative rarity of metal in this area in the pre-Christian era. Around the platform-like seat of the carriage was a lattice-work of wooden rods bound with leather thongs and partly covered with black felt, which was decorated with the figures of four swans made of colored felt. This remarkable kind of "sculpture" in the round was widespread in the nomadic art of Siberia, which used wood, horn, leather and metal as well as wool. But flat sculptures and other forms of art were also in use. The art forms were not all indigenous; foreign influences from China as well as the Near East are prominent. For example, the breast strap of a saddle cloth (shown on this page) found on one of the horses buried in Kurgan 5 includes a strip of tapestry showing a procession of lions. This, as well as the carpet we have mentioned, is strongly reminiscent in style of Achaemenid Persia or even Assyria.

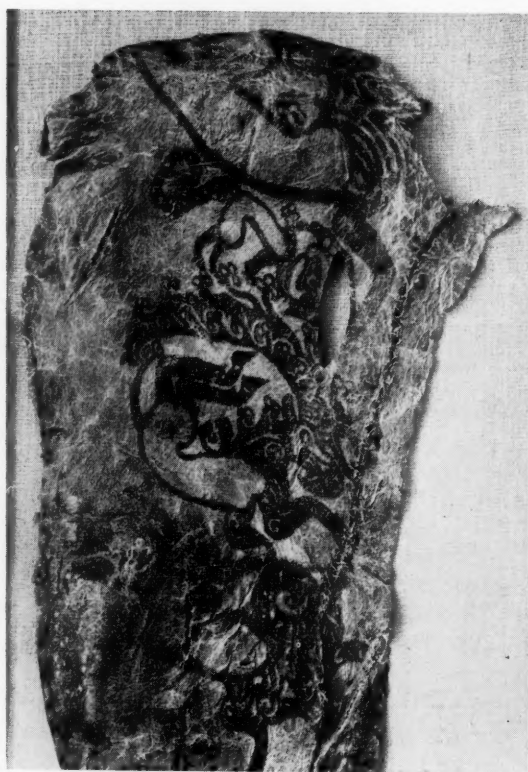
These were no ordinary burials, for the amount of time and labor necessary to dig the pits, to construct the burial chambers with logs, and then to cover all with mounds of stones, was possible only for a ruler or his family. The wealth of decoration and artistic forms, including mythical as well as real animals, is truly striking. The slaughtered horses wore ritual masks of felt, and all of their trappings were decorated. In Kurgan 2 at Bashadar, a site on the Karakol tributary of the Ursul River, excavated in 1950, stylized wooden figures of griffins with outstretched wings decorated the pommels of



Figures of swans made of bits of colored felt sewed together and stuffed, with details done in embroidery. From Kurgan 5, Pazyryk.



Above: Gold bracelet of the Sarmatian period found in the Stalingrad area, 1954. The elk heads, though stylized, seem lifelike. *Right:* Sarmatian gold plaque in the form of animals, found in the same area.



Tattooed skin from the right arm of the chieftain in Kurgan 2, Pazyryk. Various fantastic animals can be made out.

HERMITAGE TREASURES continued



Wooden plaques representing griffins, from the pommel of a saddle found in Kurgan 2, Bashadar, in 1950.

horses' saddles (illustrated directly above). The abhorrence of an artistic void spread even to tattooing. Several mummies were especially well tattooed. It was not enough to make a few tattoo marks on one's arm—rather, a complete series of artistic motifs was used, all of which tease the modern art historian. The chieftain buried in Kurgan 2 of Pazyryk had both of his arms and his right leg almost completely covered with tattooing. Rows of dots tattooed on both sides of his spine were probably made for supposed medical reasons. Although tattooing is widespread even to the present day among the nomads of Siberia and Central Asia, the significance of the fantastic creatures on the arms of the Pazyryk chieftain is not easy to determine. Perhaps the designs indicated the chief's aristocratic origin, or the marks may have had magical significance. What we have on the tattooing illustrated (the middle of the chief's upper right arm) may be a reindeer with a bird's head and flowers growing from its back. The significance of this over-exaggerated animal style is a problem for art historians. It is interesting to note that this tattooed chief was killed in battle and his scalp carried off by the enemy before his burial.

Although the date of the Pazyryk and Bashadar kurgans is disputed, ranging from the fifth to the first century B.C., it is obvious that these nomads had contacts with South Russia and the Near East. Whether they were Scythians or Sarmatians is still a problem. In any case the Hermitage has enough material for study on this question for years to come.

Turning briefly to the Sarmatians, we see their remains also represented in the museum. The famous "Scythian" gold hoards which amaze every visitor to the Hermitage probably also contain Sarmatian and local Siberian objects. The greatest quantity of gold came from the "Royal Scythian Tombs" in kurgans of the Kuban River area which were excavated in the nineteenth century, but since the Revolution Soviet archaeologists have conducted many excavations in South Russia and have found numerous gold objects.

From excavations conducted in 1954 by V. P. Shilov in kurgans at Verkhni-Pogromaye, in the Stalingrad district, came many objects from the Sarmatian period. Among the most spectacular gold ornaments in the "animal style" is a looped bracelet (illustrated here) ending in elk heads. Although the bracelet is in a typical



Polychrome pottery of the Neolithic Tripolje culture. *Left:* narrow-necked jar painted with spiral designs, found in 1953 at Nezvisko, Stanislavski district, Ukrainian S.S.R. *Right:* jar with flaring rim and interlocking S-spirals, from the same site. *Below:* jar on high base, with spiraliform and rectilinear patterns, from Tury, Rydnitski district, Moldavian S.S.R.



HERMITAGE TREASURES continued

Sarmatian style which has many parallels, it is a particularly well preserved specimen. This type is discussed and illustrated by M. I. Rostovtzeff (*The Animal Style in South Russia and China* [Princeton 1929] Plate 14). The golden plaque of a savage winged horse (?), shown on page 108, is also typical of the Sarmatian style in South Russia and reveals the great skill and imagination of the artists.

A much earlier period is represented by the three pottery vessels shown above, all excellent examples of the ceramic ware of the Neolithic Tripolje culture (dating in the third millennium B.C.) from the rich Black Earth area of southwestern U.S.S.R. The three vessels illustrated are all from recent excavations in the Ukraine

and Moldavia. The geometric designs, which are characteristic of this type of pottery, are painted in various colors.

Objects from excavations all over the Soviet Union are brought to the Hermitage, where expert restorers and specialists prepare them for exhibition. Since the end of World War II the volume of archaeological activity in the U.S.S.R. has increased enormously, and the number of people engaged in archaeology has more than quadrupled. Gradually we are learning more and more about the prehistory and early history of the lands composing the U.S.S.R., and the Hermitage Museum, with its excellent staff, is the greatest center in the world for this work. May it prosper.

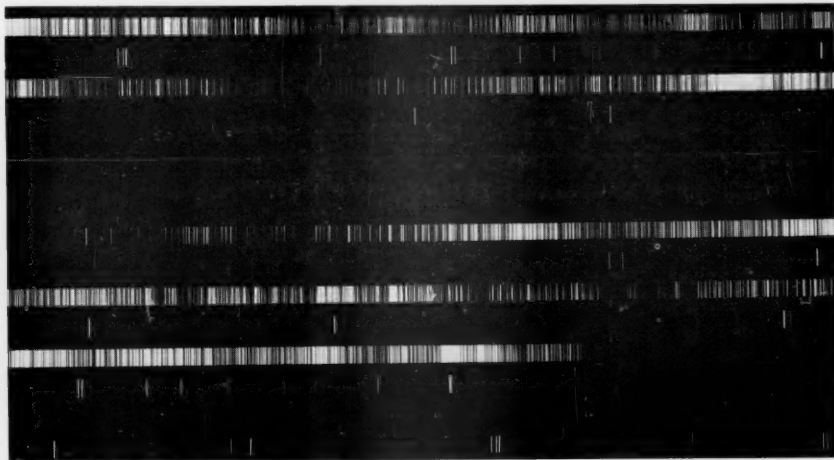
TECHNOLOGICAL RESEARCH ON ANCIENT GLASS

Ray Winfield Smith is Chairman of the International Committee on Ancient Glass, as well as of the ARCHAEOLOGICAL INSTITUTE'S own committee formed for the same purpose. For a number of years he has not only been building a remarkable collection of ancient and mediaeval glass but has also been active in promoting the study of this subject and in coordinating the efforts of those working on it. Until very recently the study of ancient glass has been largely confined to the examination and comparison of stylistic qualities. Mr. Smith shows us here how the newest scientific techniques can be used to solve the problems of the origins and chronology of ancient glass manufacture, and suggests how a well organized program of scientific research may eventually throw more light on this still obscure field.

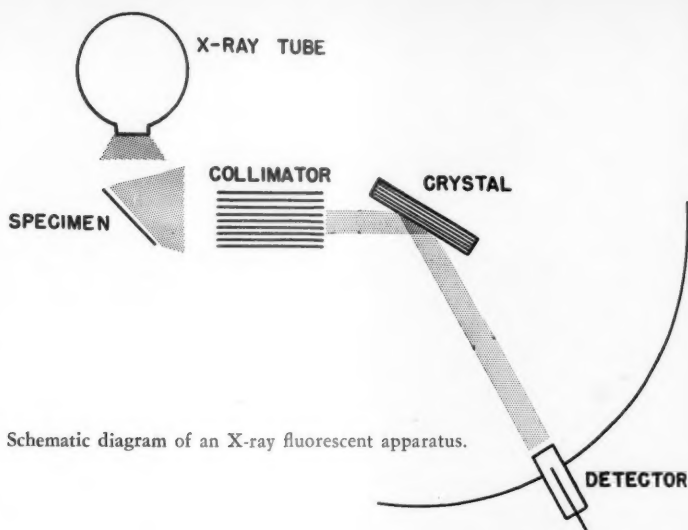
BY
RAY
WINFIELD
SMITH

IF THERE WERE NOT THE RISK of perpetrating an anachronism, this article might well have been entitled "Ancient Glass Enters the Atomic Age," for, as we shall see, our increased knowledge of atomic structure and behavior is about to make ancient glass more meaningful. This is not a technological treatise; neither is it a report of specific accomplishment, but rather a preview of things to come. That the archaeological world should exploit the truly fabulous possibilities of new analytical methods will be manifest to anyone who has observed that ranking authorities on ancient glass are still unable in some instances to date an object closer than a few centuries, and that glass is still not properly contributive to the dating of graves in which it is found.

Conventional quantitative chemical methods have been used to a limited extent on ancient glass for many years, and they will continue to be used for special problems, but they can now be advantageously replaced in many instances by newer techniques which are faster, cheaper or more sensitive. Physical methods also offer possibilities. It has been demonstrated, for example, that simple visual examination with a binocular microscope



Photographic plate of a spectrum taken by emission spectroscopy. Vertical lines indicate composition of the specimen, each element present being represented by many lines of varying intensity.



Schematic diagram of an X-ray fluorescent apparatus.

TECHNOLOGICAL RESEARCH continued

can reveal details of manufacturing techniques as well as the nature of surface stains and of imperfections. Specific gravity and the index of refraction likewise provide certain information on glass compositions. After appropriate research has been carried out, furthermore, bubble patterns will be an important factor in the determination of how ancient glass was manipulated.

Emission spectrochemistry has become an invaluable method for our purposes. It consists of burning a small quantity of the specimen in an electric arc and photographing the spectral lines of each element present. These lines are produced by spreading the light from the arc, using prisms or gratings, into its characteristic discontinuous spectral pattern. The record is made on a glass slide, where the position and intensity of any line is an indication of the amount of an element present. Initially only qualitative, spectrochemistry was later perfected to the semi-quantitative stage, and now can produce virtually quantitative results by measuring the line intensities mechanically with special optical equipment. Probably no more than a few hundred spectrochemical tests have been made on ancient glass, and the majority of these have been only semi-quantitative. Although the technique is destructive, only a few milligrams of each specimen are required, and these can usually be removed unnoticeably, even in the case of precious specimens, with no real damage to the object.

Another method of spectrochemistry is called flame

photography. Small quantities of material are aspirated from a solution directly into a flame, the spectrum of which is photographed or measured with a photoelectric cell or other detector. While rapid and accurate, this method can be used for only a few of the elements in glass, particularly the alkalis.

X-ray diffraction, a relatively new technique which has proven very useful for many materials, has commonly been assumed to offer little promise for research on ancient glass. It operates, as shown in the diagram above, by directing monochromatic X-radiation into a specimen and recording the radiation selectively reflected from the various atomic planes of any crystalline material present. The chart traced by the instrument provides information on the identity and quantities of the crystals. Glass being an amorphous substance, there should normally be no crystals to record; however, weathered surfaces as well as special abnormalities could be significant.

A MORE RECENT X-RAY TECHNIQUE called fluorescent X-ray spectroscopy is of the greatest importance for our purposes. With this method it is possible to excite a specimen of glass under circumstances which cause every atom in it to emit radiation. As all elements have their own wave lengths, the quantity of each can be determined by measuring the respective emission intensities. The fragmentary or powdered specimen to be tested is

placed in a small box, but a special holder can be installed if a complete vessel is to be examined. One of the advantages of this technique is that it can be non-destructive. There is a peculiar effect on glass of exposure to X-rays—the specimen may become smoky in appearance and gradually assume a marked purple tinge. The effect, however, is said to be transitory, moderate heat causing it to disappear fairly rapidly. The quantities of the elements present are determined by measuring the peaks on a traced chart, or they can be "counted" in radiation units by means of a Geiger counter. Against the advantage of being non-destructive, X-ray fluorescence has the disadvantage that it cannot be used satisfactorily to measure several important elements with low atomic numbers which are usually found in glass.

A useful new refinement of X-ray fluorescence is the electron probe, although the apparatus has not yet been delivered on commercial orders. Essentially the process consists of mounting the specimen in a type of X-ray tube. The electrons striking the sample produce characteristic X-rays. It is also possible to have a microscopically small excitation beam which could scan a mosaic surface, for example. This would make it possible to determine the degree or absence of homogeneity of a specimen by observing the changes in composition when the tiny beam is moved along the surface.

The mass spectrometer could be used in research on ancient glass. The sample must be sparked or arced in a

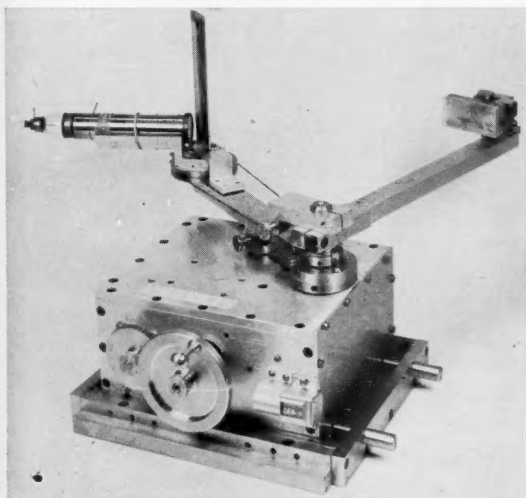
vacuum, producing ions which are subjected to electric and magnetic fields. Thus the elements of the mixture or compound, as well as their isotopes, are separated by virtue of differences in mass. In some cases the quantities can be measured with great sensitivity.

A sensational new possibility is offered by "neutron activation." It has been found that when a few milligrams of the glass sample are placed inside an atomic pile and bombarded for the proper length of time by the concentrated flux of neutrons, new isotopes of the elements are generated. The radioactivity of each of these isotopes decreases at a known rate. Thus, by measuring the radioactivity at successive intervals of time, it is possible with highly specialized methods to identify and to measure quantitatively the elements in the specimen. The method has great sensitivity for some elements not easily detected by other techniques; as little as one part in a million down to 30 parts in a million million can be detected with one-gram samples.

Among the numerous materials with which archaeology is preoccupied, ancient glass seems peculiarly suitable for technological examination by advanced methods. This is not only because glass does not yet contribute its proper share in the evaluation of archaeological finds generally, but also because the glassmaker combined numerous raw materials of diverse origin into a substance which has complicated chemical and physical characteristics.

A COMPREHENSIVE PROGRAM of technological research on ancient glass will be a major undertaking, the need for which has been recognized by the International Committee on Ancient Glass. It appears timely to consider how such a program would unfold. To begin with, it should make haste slowly. The most searching technological examination of a specimen would be impossible to utilize satisfactorily at the moment in view of the absence of broad technical knowledge of the material against which to consider the data. It is obvious that considerable introductory work should be carried out. Present techniques, moreover, are constantly being perfected and new ones added. Strictly speaking, the program should not even be started until investigations of techniques and procedures have been completed and the nature of the problem has been thoroughly studied. There evolves logically a program consisting of important preliminary work, to be followed by three phases.

Preliminary work. Modern technological methods are so new that their advantages and disadvantages in re-



Scanning spectrometer for use with X-ray fluorescence analysis. Photograph courtesy Naval Research Laboratory.



Electron-probe X-ray microanalyser. Photograph courtesy of Naval Research Laboratory.

TECHNOLOGICAL RESEARCH continued

spect to glass are not yet fully known. Some of them, in fact, have never been used on ancient glass. To be fully effective, moreover, each technique will need to be amplified by subsidiary procedures developed specifically for the glass program. No single technique can be expected to fill the entire bill, and combinations will have to be worked out with a view to maximum efficiency and minimum cost.

Parallel with the clarification of methodology there must be preliminary research on the characteristics of ancient glass, failing which the most competent technological investigations cannot be safely used. For example, ancient glass factories were frequently unable to produce a homogeneous batch. The extent of non-homogeneity should be determined and methods must be developed to ensure that the reported composition of a specimen is representative. Furnace conditions should be investigated. Actually, ancient glass will never be adequately understood until all techniques and types no longer current are duplicated in a modern shop. Only in this way can the problems and accomplishments of the ancient glassmaker be properly appreciated and the evidence of individual shop traditions be fully interpreted.

Frequently the physical and chemical characteristics of an excavated specimen of ancient glass do not accurately reflect the characteristics of the glass when made, but the phenomena of aging, particularly those which proceed at an extremely slow rate, are inadequately un-

derstood. Thus it is essential that every change in glass occurring with time be fully investigated, both as to its nature and as to the factors which determine its speed.

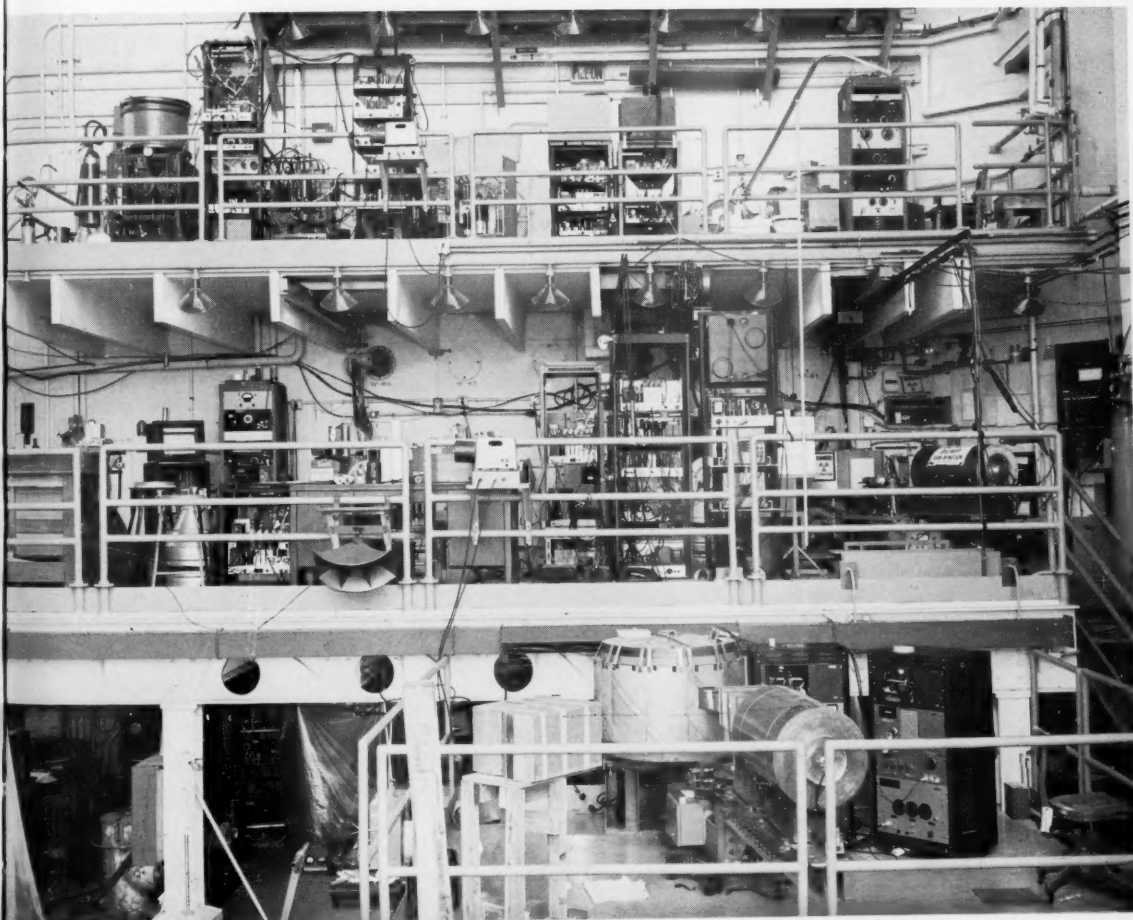
Phase 1: Area-period norms. The general nature of glass compositions in antiquity is fairly well known for a few types and periods, but for many important groups very little is known, in some cases nothing at all. Three of the most palpable *lacunae* are (a) Romano-Syrian ware, perhaps the most plentiful of ancient glass, (b) "Byzantine" glass, and (c) late Romano-Egyptian production. If the history of ancient glass from the origin of the art to the twelfth century A.D. is divided into relatively distinct periods by areas of glass occurrence, a list of more than one hundred area-periods emerges. For each of these groups a number of specimens should be selected and thoroughly investigated technologically. In this phase the emphasis should be on commonplace glassware rather than on luxury material. Its normal composition and the range of analyses encountered need to be known. After phase 1 has been completed it will usually be possible to assign specimens to one or a group of possible area-periods and to recognize unusual features in their compositions.

Phase 2: Identification of raw material deposits. It is likely that the pattern of major and trace elements in the deposits of certain localities will be sufficiently distinctive to permit their identification as deposits having served the ancient glass industry. Moreover, the quantities of the various isotopes of a given element, as for

example magnesium in dolomites, will perhaps vary from deposit to deposit, so that in some cases it may be possible to determine that glass in a certain group received its magnesium content through dolomite from a given range of hills, or, conversely, that dolomite could not have been the source of its magnesium. It is, accordingly, important that samples of deposits of the various raw materials accessible to ancient glassmakers be systematically investigated. It seems doubtful whether ancient glassmaking areas were completely self-sufficient in raw materials. Phase 2 will therefore throw light on international trade, and may reveal something of the structure of the ancient glass industry.

Phase 3: Special problems. With the technological coverage in depth provided by the first two phases, special problems can profitably be investigated. At this stage it will be appropriate, for example, to examine types of luxury ware in order to determine whether they were made concurrently in separate centers or at one point for wide distribution. Marked divergencies from compositional norms will require special attention. In some cases factories can perhaps be identified and approximately located. For example, if a type of glass vessel were found to have been made from a deposit of limestone significantly located with respect to markets or the finds, and not otherwise used in glassmaking, cir-

Nuclear reactor at Brookhaven National Laboratory in which neutron activation tests have been made on ancient glass. Photograph courtesy Brookhaven National Laboratory.



TECHNOLOGICAL RESEARCH continued

cumstantial evidence might justify the conclusion that a glass factory operated near that deposit.

AS THE PROGRAM APPROACHES COMPLETION, technological criteria should enable us to attribute all ancient glass in time and space with reasonable certainty. In fact, it is likely that the data obtained will reveal stylistic and constructional features of many area-period groups, on the basis of which certain attributions can be made without the necessity of technological examinations.

Some of the factors which must be considered in such a program are already perceptible. In the first place, there should be close collaboration between archaeologists and glass technologists. Either would court disaster in undertaking the program alone. It is likewise important that the same general terms of reference and methodology be followed in the numerous institutions which must participate if the whole task is to be completed within the foreseeable future. Since facilities will at best be somewhat limited, whatever research is carried out should fit into an over-all program and represent the most ordered ap-

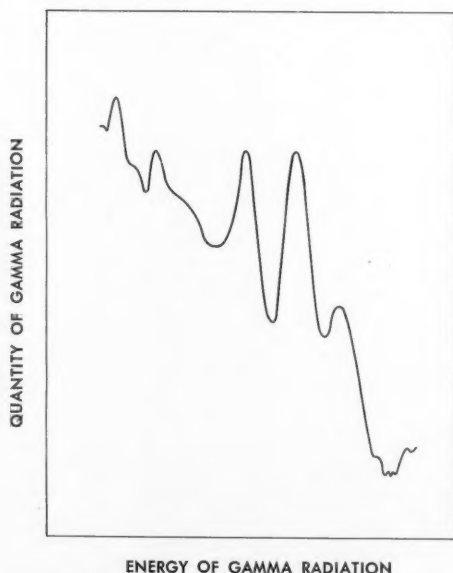
proach to the ultimate objective. For these reasons it seems important that a program be drawn up in concrete terms, that it be approved by authoritative bodies in the archaeological and glass fields, and that it be carried out under central coordination and with standardized methods. This in no way means either compulsion or exclusion: every research facility will be quite free to make its own decisions with respect to research. But it seems probable that nearly every institution will be glad to accept intelligent suggestions from an appropriate central body, designed solely to give the research an optimum usefulness.

At this juncture a word of caution seems called for. Although there is every reason to anticipate useful, even sensational, results from the program, it does not follow that they will be easily attained or that they will come quickly. In fact, much of the data produced will probably be initially difficult to interpret, confusing and perhaps even apparently contradictory. This is only because our knowledge at the outset is so meager. The value of the work will become fully apparent only with time, but as the mass of data becomes progressively more substantial its usefulness will expand at a constantly accelerating rate.

The program will inevitably require the most competent advice from fields unrelated to archaeology or glass technology, and the trail will lead us on occasion into unexpected places. The selective absorption by certain plants or trees growing in soil of a given composition, for example, will very likely have to be investigated in order to understand the pattern of trace elements introduced into ancient glass at times through the use of plant ashes.

Next to technical competence in the use of the phenomenally intricate new methods and equipment, the most important factor in a research program will be rigid criteria for the selection of specimens to be analyzed. Carelessness in this respect has seriously affected the usefulness of much of the analytical work which has been done in the past.

It is already possible to foresee a future need, after the research program has made substantial progress, for arrangements under which excavated specimens can be systematically submitted to competent institutions. Here the technological examination, besides furnishing date and provenience, might occasionally detect an unusual feature suggesting promising new avenues of research and justifying concentrated additional investigation.



Instrumental analysis of gamma ray radiation from a specimen of ancient glass which has been subjected to neutron activation. Elements contained in the specimen are represented by peaks, the height of each peak being in relation to the amount present. Graph courtesy of Brookhaven National Laboratory.

THE CEMETERY AT HERMOUPOLIS WEST:

A FORTNIGHT OF EXCAVATION

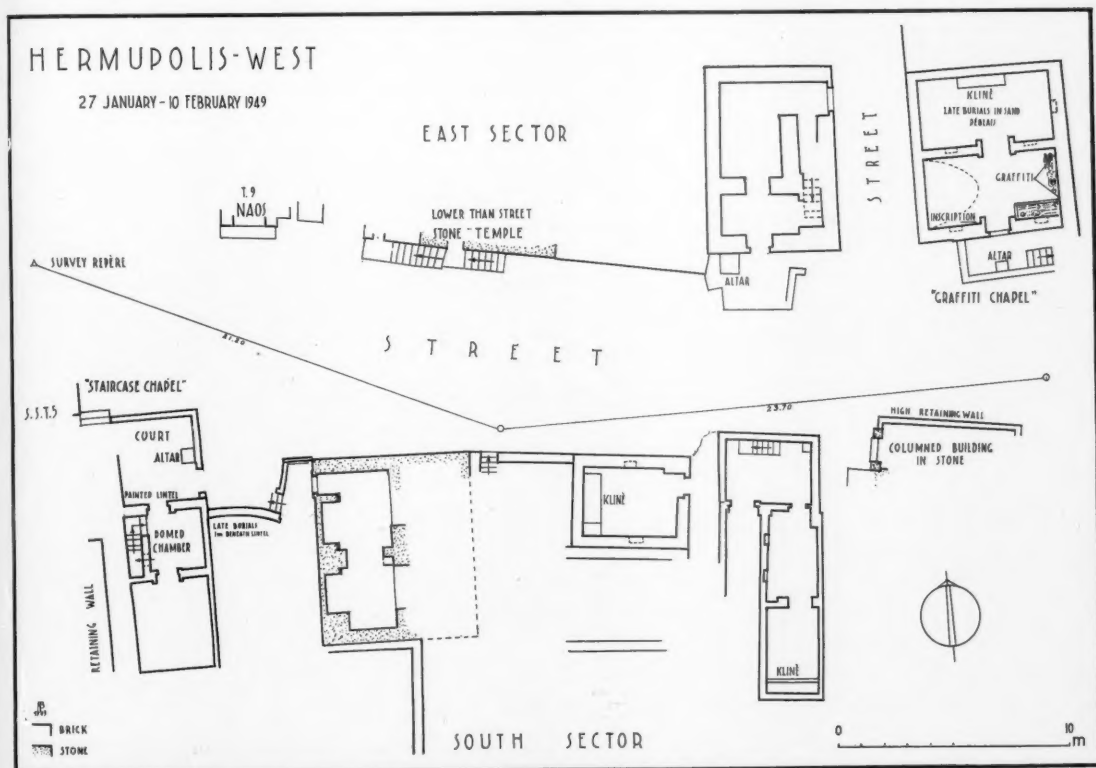
By Alexander Badawy

FEW SITES IN EGYPT, and probably not many in the world, afford such ideal conditions for excavation as does Hermoupolis West on account of the climate and the dry sand which preserves the ancient remains. Hermoupolis West is situated on a high desert plateau at the foot of the Libyan range of mountains, about two hours' drive from Hermoupolis Magna, for which it served as a necropolis. Hermoupolis Magna was an important city of Middle Egypt whose record goes back into remotest history. It was the city of Thoth, god of wisdom and science, who created the universe and the notion of time, and offered the Egyptians the gift of writing. Hermoupolis is the Greek name, "City of Hermes," but its Egyptian name Khemenu, "The Eight,"

still preserved in the modern name Ashmunein, shows that it was the seat of the primaeval "Ogdoad," or Company of Eight Gods.

The necropolis has the unique feature of having been originally a pilgrimage center which seems to have grown up about the shrine of Thoth, at least as early as the fourth century B.C. At the back of this shrine was a garden, a fountain and a huge double well. There is sufficient evidence to show that within these precincts baboons and ibises enjoyed the privileged life of animals sacred to Thoth. Thousands of mummies of these animals were found in extensive galleries hewn underground north of the temple.

It must have been a privilege to be buried in this



HERMOUPOLIS WEST: PLAN OF THE STREET BORDERED WITH FUNERARY CHAPELS, WHICH WAS EXCAVATED BY THE AUTHOR.

THE CEMETERY AT HERMOUPOLIS WEST continued

sacred ground, for to the east of the temple precincts a whole city of funerary chapels grew southward by accretion, seemingly without any definite plan. Burial was arranged in various fashions, at the bottom of a vertical shaft or on a funerary bed called in Greek a *kline*. Such beds were built in masonry, plastered and painted to imitate actual beds. The chapels are small structures of two rooms, in brickwork or stone, and it is in the rear room that the *kline* was built, abutting the back wall and often set in a niche flanked with columns or pilasters to imitate a bed alcove. The lower parts of the walls are often elaborately painted like those at Pompeii, sometimes with scenes from the Greek mythology. The dry white sand has kept this sacred site untouched for about fifteen hundred years, preserving the delicate wall paintings and the wooden furniture much as they appeared when the last pagan priest was fighting the encroaching Christian creed about the end of the third century A.D.

DR. ALEXANDER BADAWY, Professor of the History of Architecture at the University of Kansas, is the author of several important books, the most recent of which is *A History of Egyptian Architecture*. The first volume of this authoritative work appeared in 1954; the second is ready for the press. The author has excavated at other sites in Egypt besides Hermoupolis West—at the Coptic monastery of Phoibammon, Western Thebes, and at the Late Roman fortresses of El Kab and Dionysias (Qasr Qarun, Fayum).

My earliest contact with Hermoupolis West goes back to 1937, when I was asked to draw an architectural survey of the monuments that had been brought to light during the nine previous years. Later, I was attached as an architect and archaeologist (1939-1941), and afterwards I went there on various occasions. In 1949 it was felt that some control of the excavations should be enforced, and I was asked to cooperate with two other professors from the Faculty of Arts of Fuad I University, each of us to take his turn as field director in shifts of fifteen days. Although the project was actuated by an endeavor to achieve conscientious excavation, it proved most impractical. The constant shifting of responsibility for directing the dig left too much leeway to the two foremen. I found that a Decauville line had been set on top of the chapel walls, so that as the track was gradually lowered with the clearing of the sand, parts of the walls were being destroyed by the workmen in order to make way for the rails and wagons. Under my direction the line was shifted over to the nearby street.

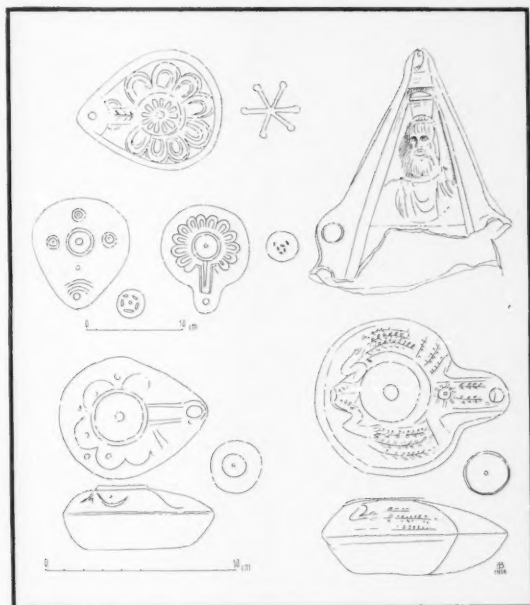
My fortnight of excavation was spent in clearing about forty-five meters of this street, which was about two meters above the level of bedrock. It ran east-west along the edge of the area which had been excavated up to that time. My aim was to clear the street so that further excavation could be carried out in the chapels bordering it. The



View of the excavation, looking west, after the Decauville line had been moved. The men in the foreground stand below the embankment where the line originally ran; gaps opened in the walls for its passage are seen farther to the right.

work was easy, consisting of filling the wagons with dry loose sand after each basketful had been examined for stray objects or pottery. As a matter of fact, most of the objects—usually broken fragments but some intact—came from the sand filling. There was no inscription to date the finds, but from typological evidence they could be ascribed to the first three centuries of our era, when the country was under Roman rule. Among the fragments were found two small intact pottery vessels, a circular wreath apparently made of reeds, two Roman coins and a fragmentary whistle in the shape of a bird. Along the north side of the street a small brickwork parapet wall and a step of later date were removed after being photographed. The stone stairway to a temple on the north side of the street proved to lead down to a level lower than that of the street itself. Some traces of charcoal below the last step permit us to assume that an altar may have stood here. Altars were usually set along the approach to a temple, whether this was a street or a stairway.

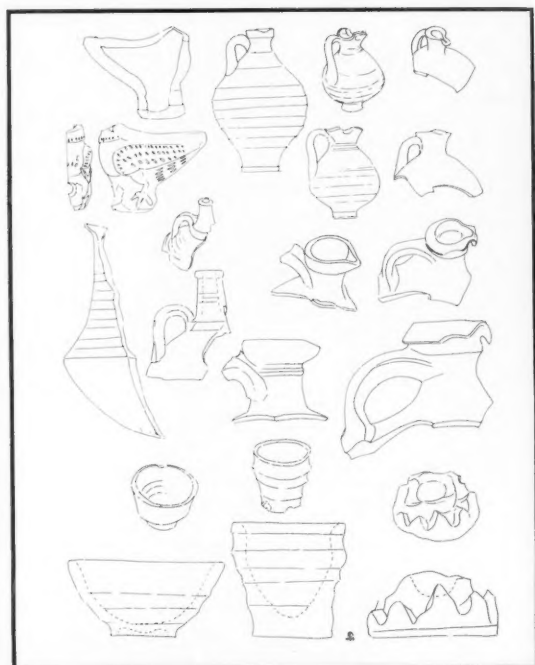
Some difficulty was experienced because the sand filling the chapels poured out into the street when it was cleared. The dome of a chamber at the western end (lower left on the plan) had been worn very thin under the tread of modern visitors to the excavation, and when it was deprived of its sand support, it caved in. In the



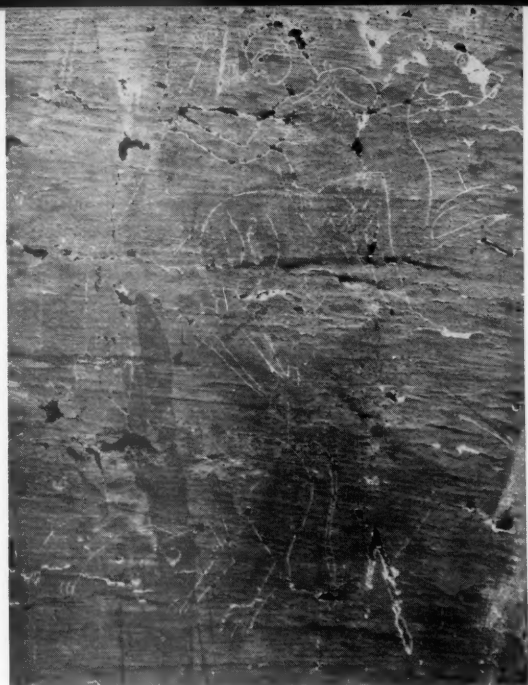
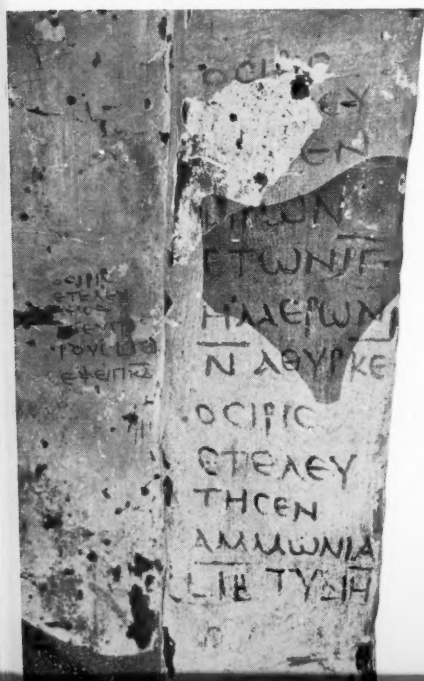
Drawings of pottery lamps found at Hermoupolis West.



Some of the most interesting pieces of pottery excavated at Hermoupolis West.

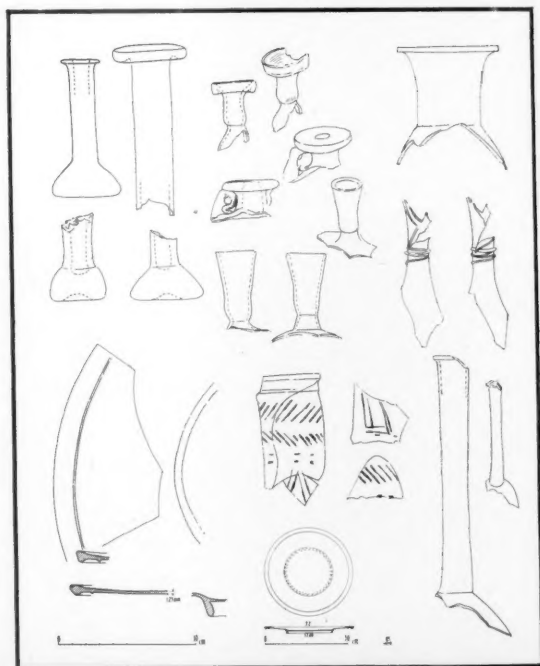


Greek epitaphs painted in red ocher on a wall of the "Graffiti Chapel."



Graffito on the wall of the same chapel. This rough engraving shows a horseman spearing an animal.

Left: Drawings of some of the pottery found at Hermoupolis West. Note the fragment of a whistle in the shape of a bird (top left). Below: Drawings of some of the glass vessels found during the excavation.



THE CEMETERY AT HERMOUPOLIS WEST continued



Drawings of various graffiti on the chapel walls: the horseman shown at left, a row of five personages, and a soldier (above).





Various finds from the "Graffiti Chapel" and elsewhere: leg of a funerary bed with plaster plaques attached, wooden uraeus, wreath of reeds, glass fragments, terracotta arm.

THE CEMETERY AT HERMOUPOLIS WEST continued

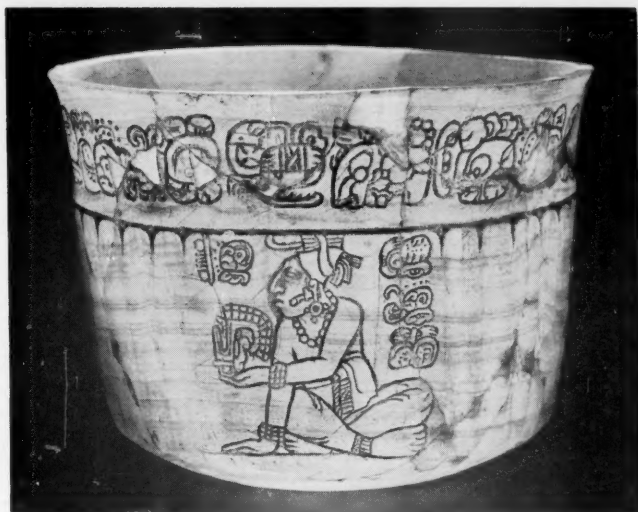
court fronting this chapel there was an altar with a niche. The lintel of the chapel door was decorated with a saw-tooth band painted in reddish brown. A staircase rose from the front room to an upper story, of which no trace was left. At a later date a row of bodies was laid about one meter below the level of the lintel. These were oriented south-north, side by side or lying across the doorways. They were on very thick wooden stretchers cut to the general outline of the body, a characteristic common to Late Roman burials in Egypt. The bodies were wrapped in linen bands; no objects were found with them. Among the most interesting finds from the fill was a fragment of a thin glass dish whose diameter must have been 32 cm. (see restored drawing). Other finds include fragments of pottery and glass vessels, an ointment spoon, two lamps of gray clay, one ornamented with a frog in relief, an intact vase with red and yellow painted bands, two iron nails in the wooden lintel of the north doorway, and faience *shawabti* (funerary figurines).

During an inspection tour I discovered an inscription painted in red ocher on the east door-jamb of the building at the corner of the transverse street running north (upper right on plan). After the sand was cleared away it appeared that there were two short Greek epitaphs, giving the names of a woman, Ammonia, and her children(?), with the dates of their deaths. The next day, when I cleared the front room of this chapel, I had the thrill of uncovering some graffiti which had been scratched with a sharp point on a wall covered with a grayish wash, thus revealing the white plaster background. Done in a sketchy though accomplished style, they show a row of five personages, a soldier and a

horseman spearing an animal. The latter scene might be a prototype of the saint spearing the dragon, a subject which appears in the Coptic repertory. On the north wall of this front room, on both sides of the doorway to the inner chamber, were paintings in crude Egyptian style: on the east side a mummiform Osiris seated holding the two scepters *heka* and *nekhakh*, and on the west Osiris seated before an offering stand, receiving a woman holding a vase and protected by Isis.

Along the south and east walls of this front room burials were uncovered, each inside a rectangular area bordered by a row of bricks. Two bodies lay side by side, the feet of one beside the head of the other, while at the feet of still another were two small skeletons with gold-covered crania, and painted pottery vessels beside them. In later times burials had been set in the sand filling of the inner room. In the rear wall there was the usual funerary bed or *kline*. Nearby were found a wooden leg of the bed, to whose joints plaster plaques of symbolic meaning had been glued: a grotesque head, a face of Bes (a household genius), a sea shell, a Greek woman carrying a vase. Various other cast plaques were also retrieved: a rosette, a piece of fruit, a male head with flowing hair. These were probably the fittings of another leg of the bed. Among other interesting finds in the filling were a stuccoed wooden uraeus (near one of the bodies), a plaster cast representing a crowned woman, molded plaster elements such as hands and arms, a fragmentary lamp with a head of Serapis.

All in all, this very modest but essential work of clearing brought to light a variety of interesting finds of the Graeco-Roman period from a unique pilgrimage site.



Onyx marble bowl from Campeche, of the Classic Maya period. Another view is shown in color on the cover. Color plate courtesy Mr. Robert Woods Bliss and the Phaidon Press.

PRE-COLUMBIAN ART: A REVIEW ARTICLE BY J. ALDEN MASON

THE APPRECIATION OF American indigenous art has increased tremendously in the last two decades. Most art museums now display American aboriginal art objects, and some dealers specialize in and have exhibitions of American art; fine pieces bring high prices. One of the first books to call indigenous American art to the attention of the public was Pal Kelemen's *Medieval American Art* (1943); it astounded publishers by running through two more editions, and it has recently appeared in a one-volume edition (1956).

Long before 1943, however, some men with broad aesthetic viewpoints recognized the beauty of this art. Robert Woods Bliss began making his extraordinary collection in 1912, and since that time he has built it up by picking up prize objects at every opportunity. In 1947 the collection was placed on exhibition at the National Gallery of Art in Washington, where it has been admired by many thousands of persons. At that time was published a handbook of the collection entitled *Indigenous Art of the Americas*, prepared by Dr. Samuel K. Lothrop.

Now a magnificent and beautifully illustrated catalogue of the entire collection has appeared.* It is a lovely and

elegant book in every respect. Nickolas Muray's large plates, showing probably three quarters of the objects in natural colors with blending backgrounds, are, of course, of primary interest, but the texts, by some of the best authorities in their fields, are of equal importance.

All the objects are of outstanding quality—not folk art but, as Lothrop remarks, "manufactured for the aristocrats of their day." The collection is, however, limited to "nuclear America," from southern Mexico to Peru; the artistic productions of the United States, the Antilles and eastern South America are neglected. The Maya region, Costa Rica, Panama and Peru are especially well represented. The emphasis is on objects of gold, jade and other semiprecious stones, and textiles, though there are many larger stone sculptures and lovely small objects of shell, bone and wood. Pottery vessels are few, but a number of pottery figurines are included, especially a large group of entrancing Maya figurines from Jaina. The varied emotions depicted by the facial expressions of these figures stamp their creators as great artists; the lecherous old man and the young girl (Plate LXXV) is a delightful example. Everyone will have his favorite pieces, but to me the lovely portrait-like jadeite bust on Plate III, the dynamic green stone figure of Tlazolteotl, the Aztec goddess of childbirth (Plates XXXVI and XXXVII), the jadeite figure of a rabbit (Plates XXXVIII and XXXIX) and the exquisite little gold

*PRE-COLUMBIAN ART: Robert Woods Bliss Collection. Text and critical analyses by S. K. LOTHROP, W. F. FOSHAG, and JOY MAHLER. 285 pages, 31 figures, maps, charts, 163 plates. Phaidon Press, London. Doubleday & Co., New York 1957 \$30.00.

PRE-COLUMBIAN ART continued

Mixtec ornaments (Plate LIX) are outstanding. The last twenty-three plates are devoted to extraordinary Peruvian textiles.

The onyx marble bowl from Campeche shown on our cover (No. 140, Plate LXXXVI) is a masterpiece of Classic Maya art. It seems to portray "the ceremonial offering of religious symbols, representing the earth, probably to the North Star god on a certain day Imix." One of the three seated human figures, who are probably priests, appears on the cover, another on the preceding page. The hieroglyphs accompanying the figure on the cover apparently signify "Precious Lord Seven (bar with two dots) Earth." The glyphs associated with the text figure show the monkey-like head of the North Star god, together with the number seven, to the left, and to the right are glyphs of the day Imix, the North Star god, and the north. The inscribed band of glyphs around the rim is not all translatable, but it contains references to Imix and to the North Star god. Some equivocal calendrical data are also given, but on stylistic grounds the bowl is presumed to have been made some time during the ninth century.

The brief but admirable summary, "Cultures and Styles," by S. K. Lothrop, founded on his encyclopaedic knowledge of the archaeology and art of nuclear America, is a model of lucidity. This is followed by "Mineralogical Attributions," in which the late Dr. W. F. Foshag describes the various minerals employed by the native lapidaries and the techniques used. Probably owing to

his sudden death there are a few typographical errors in the Aztec names for stones. His statement that the lapidary "used material no harder than the stone he fashioned" may be a slight exaggeration.

The article on "Textiles" by Joy Mahler is short, concise and sound. It may surprise many readers to learn that "probably the oldest surviving fabrics in the entire world, dating from ca. 2500 B.C., were unearthed on the Peruvian north coast," that the ancient Peruvians made "yarns of such extremely fine quality that they cannot be reproduced today by mechanical spinning apparatus," and that they made weaves that "cannot be manufactured on our modern machine looms." Among the pieces shown in the plates there are fifteen distinct weaves and supplementary techniques. In the final section on "New World Metallurgy" S. K. Lothrop outlines the history of metallurgy in aboriginal America. Though he makes no reference to it, the knowledge of the techniques of *cire perdue* and *mise en couleur*, highly developed processes known also in the Old World, raises a suspicion of trans-Pacific influences.

The plates are followed by a long catalogue in which every piece is described, with full data, implications and comments. This is accompanied by many text figures, mostly giving other views of the objects under discussion. The author of this valuable section is not mentioned, but, judging from the evident erudition, archaeologists allowed one guess would probably decide on the author of the earlier handbook of this magnificent collection.

*Highlights of the
AUTUMN
issue of*

ARCHAEOLOGY

VALDIVIA—AN EARLY FORMATIVE CULTURE OF ECUADOR

by Clifford Evans and Betty J. Meggers

THE MYSTERIOUS SUDOVIAN PEOPLE

by Jerzy Antoniewicz

"LET'S RUN DOWN TO BAIÆ"

by Richard M. Haywood

THE EMBALMING HOUSE OF THE APIS BULLS

by John Dimick

GREEK AND ETRUSCAN ART IN THE MUSEUM OF RHODE ISLAND SCHOOL OF DESIGN

by Dericksen M. Brinkerhoff



ARCHAEOLOGICAL NEWS

Obituaries

We record with regret the deaths of these distinguished scholars:

CHESTER C. McCOWN, specialist in Palestinian archaeology and biblical studies, long associated with the American Schools of Oriental Research (died January 9, 1958, at the age of eighty);

ALFRED SALMONY, authority on Far Eastern art, editor of the periodical *Artibus Asiae* (died April 29, 1958, at the age of sixty-seven).

Photographic Service

Those interested in ancient Rome and Italy will be glad to know that a useful photographic service has now been established by the International Union of the Institutes of Archaeology, History, and History of Art, in Rome. Photographs of practically any monument of ancient Rome, as well as of seventy other archaeological sites in Italy, can be obtained by writing to Dr. Ernest Nash, Fototeca di Architettura e Topografia dell'Italia Antica, Via Angelo Masina 5, Rome, Italy. Photographs are provided both from the archives of the Photo Reference Collection itself and from other sources, as far as they are available. The charges are moderate.

Campaign at Beth-Zur

From October 14 to November 8, 1957, excavation was carried on at Khirbet et-Tubeiqah by McCormick Theological Seminary and the American Schools of Oriental Research under the direction of Ovid R. Sellers, who with William F. Albright had excavated at the site in 1931. H. Neil Richardson was archaeological adviser. Robert W. Funk, Paul W. Lapp and John L. McKenzie were area supervisors. Mrs. Lapp was in charge of pottery registration and Mrs. Sellers and Mrs. Funk assisted in drawing and reconstructing the pottery. Bea-

trice Goff helped in the classification of objects. Emil Abu Daiyeh was general foreman and had charge of negotiations with the land owners and workers. Subhi Mukhtadi was surveyor and Mahfuz Nassar the technician.

The aim of this season's work was to clarify some of the defence system of the site, since in the previous excavation the operation was confined mainly to the living areas of the city. Three fields were opened on the east slope of the hill, where it was reasonably expected that defence walls would appear. Field I and later Field III were at the northeast, each consisting of four five-meter squares with intervening balks. Here defence walls tentatively identified as Middle Bronze, Iron I, Iron II and Hellenistic were



Ivory sphinx found at Beth-Zur in Palestine. Length 2 1/16 inches.

laid bare. The Middle Bronze wall was especially massive.

Field II consisted of five five-meter squares. Here a massive rampart of the Hellenistic period was uncovered. Part of it was found to have been built over the remains of Iron II walls. A large cistern was thoroughly investigated. It yielded fifteen whole, or nearly whole, water pitchers, four cooking pots and a small juglet, all late Hellenistic. In this field was a basin similar to others found in 1931 and provisionally called "footbaths." This basin, however, was larger and had a depression in the rim, suitable for holding a jug.

The small finds were not spectacular. Of greatest interest was a well

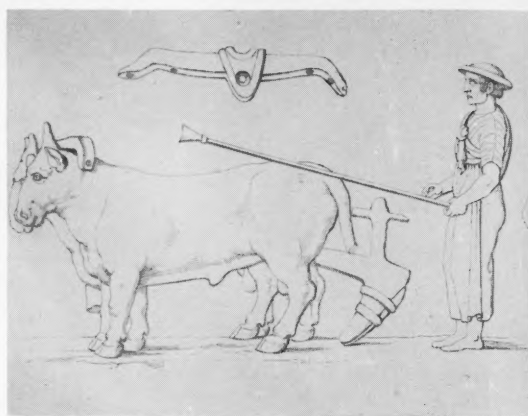
carved ivory sphinx, evidently an inlay, found in Iron I-II context. There was a cone seal showing three cows (two fat and one lean) and a scorpion. Other finds were a Hyksos scarab, beads, two toggle pins, six stamped Rhodian jar handles and Ptolemaic, Seleucid and Hasmonean coins. In putting together some sherds there was assembled a lid like those found with the Qumran jars. This was of the Hellenistic period and is the only such lid found so far outside the Qumran area. An inscribed sherd with three letters remains a puzzle to epigraphers who have examined it.

Oriental Society Meeting

The 168th meeting of the American Oriental Society took place in New York from April 1st to 3rd. We report briefly on some of the papers relating to archaeology.

Of exceptional interest among papers on the ancient Near East was Helene J. Kantor's lucid classification of Syro-Palestinian or Canaanite art of the second millennium B.C. She distinguished three phases, the first a formative one (later Middle Bronze IIA). With objects from Byblos and cylinder seals from this and other sites, she demonstrated the emergence of local individuality amid strong Egyptian and Mesopotamian influences. The second phase (Middle Bronze IIB to Late Bronze IIA) she calls the "Glyptic phase" because it is as yet represented only by cylinder seals, which demonstrate local inventiveness. The third phase, called the "Ivory phase," is dated Late Bronze IIA-IIB. Ivories and metalwork reflect the importance on the international scene of Egyptians, Hittites and Mycenaeans. Seals, on the other hand, are becoming decadent, reflecting the waning influence of Mesopotamia.

William F. Albright reported on progress on the early alphabetic in-



Left: False Roman pottery lamp. Right: Old engraving from which the representation on the lamp was copied.

A False Roman Lamp

Pottery lamps are amongst the most numerous of small finds from Mediterranean sites, and they can be interesting in themselves as well as being a valuable means of dating. For over two hundred years false examples have been made to supply the needs of collectors who are not too critical. Nowadays, a study of these forgeries can be rewarding.

The lamp illustrated was purchased a few years ago in Cyprus; I do not know its previous history. As the photograph shows, it has a peculiar shape and the details (e.g., the relief scene and the volutes) are clumsy. Also it is most unusual in that the

scene runs along the length of the lamp and not across it. The lamp is made of a light buff clay which contains a few small particles of mica. I have not been able to find any other lamp forgeries in this particular fabric.

On the slightly depressed discus is a relief of a ploughing scene. The plough is drawn by two yoked oxen; a ploughman stands behind holding a long stick over their backs. The plough is an Italian variant of Gow's type II (*Journal of Hellenic Studies* 43 [1923] 251): the tail is inserted into the pole; the stock is at rather a steep angle. It is armed with a metal shoe secured to the stock by two bands. The ploughman wears a wide-brimmed hat, a chiton, and the skin of an animal with

two of its legs tied across his chest.

This scene is taken from an engraving (G. Micali, *Antichi Monumenti* [1810] plate 50) of an Etruscan bronze group of about 400 B.C. which was found at Arezzo and is now in the Villa Giulia Museum, Rome. The relief on the lamp is a mirror image of the engraving; the forger probably made the mold direct from the picture. In later representations of this bronze the ploughman does not carry the long stick, nor does it appear in the earlier engraving in Gori, *Museo Etrusco* I (1737) plate CC. It was probably a modern addition in Micali's time, removed since.

D. M. BAILEY

British Museum

scriptions from Sinai and Canaan. He stated that the arrangement of the characters in columns and groups was slightly more irregular than originally assumed. By 1948 nineteen letters had been identified, and now twenty-two out of some twenty-seven consonants have been recognized. The Proto-Sinaitic dialect appears to have been very close to normal Canaanite.

Phoenician and ancient Hebrew use of arrows for divination (belomancy) was discussed by Samuel Iwry, who explained in this manner some newly found bronze arrow and javelin heads, each inscribed with a personal name. He cited biblical and other sources in support of arrow-throwing as a means of divination, and also interpreted an inscribed bronze spatula from Byblos as a divinatory tool.

G. W. Van Beek produced the

neatest trick of the meeting by turning the so-called South Arabian house models upside down, thereby showing that the projections which are usually interpreted as towers with conical roofs are actually legs and feet, and that articles of furniture—perhaps chests—are represented.

Archaeology in Mesopotamia was represented by only one paper, Vaughn E. Crawford's report on the ten foundation deposit boxes of kings Ur-Nammu and Shulgi of the Third Dynasty of Ur (ca. 2000 B.C.) found at Nippur (see *ARCHAEOLOGY* 9 [1956] 216-217). Each box was made of baked brick, and inside was a cast copper figurine which supposedly represents the king. Three deposits were of Ur-Nammu's time, seven of Shulgi's. In addition to the copper figurine, one Shulgi box contained the remains of a

similar wooden figurine. All the figures were wrapped in cloth. Each box also contained a stone model of a plano-convex brick, a type used in earlier Mesopotamian temple construction. Beads, some covered with gold foil, and chips of semi-precious stones also formed part of the deposits. This is the first time that such foundation figures have been excavated with so much data preserved.

Two papers dealing with Sumerian texts added considerably to our knowledge of early Mesopotamian thought. Samuel N. Kramer reported on a cuneiform tablet in the Pushkin Museum (Moscow) which contains a hitherto unknown Sumerian literary genre. The text, a funeral dirge for the father of Ludingirra and another for Ludingirra's wife, was written in Nippur some time about 1700 B.C.,

though it may have been composed earlier. Of paramount interest is a prayer to the gods of the netherworld which provides new information about deities who were thought to rule it. Edmund I. Gordon spoke on the fauna of Mesopotamia as depicted in Sumerian proverbs and fables. Among the sixty-four species of animal life referred to in the proverbs, Gordon chose the monkey, rat and pig, and discussed Sumerian ideas about the characters of these animals.

Inscribed Arabic glass vessel stamps from Egypt were discussed by George C. Miles, who explained them as labels of pharmaceutical measures or containers. More than fifty drugs have been identified, among them pomegranate, sesame seed, lupin, fennel or dill, tamarind, lentil, cumin, jujube and wode (*isatis tinctoria*).

In the Far Eastern section John F. Haskins discussed bronzes recently found in China in layers preceding the well known assemblage of the Shang period from Anyang. He singled out the *chüeh*, showing a development from a pottery type to the elegant metal form of Shang II. Moreover, he distinguished two types of decoration in the pre-Anyang bronzes, one characterized by a flat, angular rendering of the later *t'ao-t'ieh wen*, the other a raised thread-line pattern, somewhat reminiscent of Middle Chou motifs.

Ancient Chinese trade with Borneo was the subject of John A. Pope's paper. There is plenty of evidence from Chinese sources of trading with Borneo from the tenth century on, but only recently has any attempt been made to verify, by systematic excavation, the extent of this trade. In the last decade five sites in the Santubong delta have yielded thousands of potsherds that range from the ninth to the thirteenth century (and to the sixteenth in Brunei). In addition to ceramics there were beads, gold sheets and glass. The excavations have served to locate at least one important Chinese settlement on that huge island. This is something new and unsuspected since the texts speak only in a general way about Borneo.

Jane Gaston Mahler presented a beautifully illustrated survey of Mon art in Burma, showing Buddhist temples, frescoes and sculptures. Of particular interest was the Nagayon temple, at Pagan (eleventh century), in which indirect light was concentrated

upon the Buddha statue by means of a shaft.

The symposium, on the subject: "Tradition and Innovation in Ancient Near Eastern, Indian, Islamic and Chinese Art," was a highly stimulating affair in which Briggs W. Buchanan, Joseph Campbell, Oleg Grabar and Nelson Wu participated. Aschwin Lippe was the chairman.

EDITH PORADA

Study of Japanese Glass

The Corning Museum of Glass has announced the award of a special fellowship to Miss Dorothy Blair, a well known orientalist who proposes to undertake, for the first time, a study of Japanese glass as a basis for an authoritative publication on this subject. While in Japan, Miss Blair will work with Japanese scholars, museum directors and private collectors and make a photographic documentation of her findings.

Although during the last four years the Corning Museum of Glass has awarded a total of twelve fellowships for research in the history of glass, this is the first time that this institution has granted a fellowship to a student of glass for study abroad.

New Explorations at Sardis

Sardis, the capital of ancient Lydia in western Anatolia, the city of King Croesus whose fabulous wealth is still a byword, will be the objective of an expedition sponsored by Cornell University, the Fogg Museum of Harvard and the Bollingen Foundation, under the auspices of the American Schools of Oriental Research. The first of three campaigns is planned for the summer of 1958. The field director is George M. A. Hanfmann of Harvard University; A. Henry Detweiler of Cornell University will be field adviser and chief architect.

During this first season the expedition will concentrate on stratigraphy and on recording numerous buildings of the Hellenistic and Roman city. Among the main objectives will be the identification of the sites of the palace of Croesus and of the great temple of Zeus. It is also hoped that some of the very early coins of Sardis—perhaps the earliest ever issued—will be discovered.

The royal cemetery, which stretches

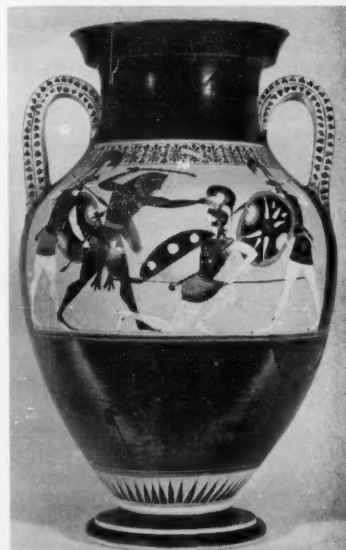
for several miles along the Hermus valley, is eventually expected to yield a rich harvest of finds dating back to the Lydian kings of the sixth century before Christ.

This is the second time that Sardis is being explored by an American expedition. A group headed by the late Professor Howard Crosby Butler of Princeton University worked there from 1910 until the outbreak of World War I. An attempt to resume excavation was made at the end of the war by the late Professor T. L. Shear, also of Princeton, but he was forced to abandon the dig when fighting broke out between Turks and Greeks.

Amazons in Greek Art

A special exhibition which opened at the Metropolitan Museum of Art in New York on May 15th will be of interest to our readers. The exhibit shows in one room all the representations of Amazons in Greek art which are in the Metropolitan Museum, and to these have been added many pieces lent by private collectors in the Greater New York area. Most of the fifty-odd objects are vases which range in date from the second quarter of the sixth century to the end of the fourth century B.C. Sculpture is represented by the early Attic terracotta relief with Achilles in combat with Penthesilea,

Herakles and Amazons. Amphora in the manner of the Lysippides painter.



and by the Lansdowne Amazon, a Roman copy of one of the Ephesian Amazons, attributed to Kresilas. A Roman gem shows the head of the Polyclitan Amazon.

Most of the objects in the exhibition, which will remain on view through the summer, are illustrated in Dietrich von Bothmer's recent book, *Amazons in Greek Art*.

Pennsylvania Campaign in Iran

In 1956 an expedition sent to Iran by the University Museum of the University of Pennsylvania surveyed sites in the northern part of that country and conducted excavations for ten days at Hasanlu (ARCHAEOLOGY 9 [1956] 284-285) in the Azerbaijan region of Iran. Robert H. Dyson, Jr., was in charge.

In 1957 Dr. Dyson went back to Hasanlu and undertook more extensive digging. He reports the results of

the campaign as follows:

During the summer field season of 1957 four new operations were undertaken, three in the Outer Town area, and one on the Citadel Mound. The Outer Town deposit was penetrated in the eastern area to virgin sand at a depth of 8.50 m. below surface. The initial phase of occupation was found to be characterized by orange-colored pottery painted in geometric or animal designs, and a simple kind of carinated bowl. This phase was followed by a period of burnished gray ware and whitish ware painted in simple rings. These wares occur in simple vase form or as cups with loop handles. In each case a type of button base is characteristic. This material is similar to some of the tomb groups already known from Tepe Giyan and dated to around the fourteenth century B.C. In the succeeding phase, also characterized by burnished gray and red wares, but without the button

bases, was recovered a bronze sword or dagger of Luristan type, also known from Giyan and generally dated around the twelfth century B.C.

The northern section of the Outer Town yielded graves containing spouted gray ware and red ware bowls. Jewelry of copper, bronze and iron was worn. The material found in these graves is representative of most of that previously known from Hasanlu through other excavations and illicit digging.

Operations on the Citadel itself were confined to clearing winter wash from the two soundings made last year and running a trench between them to obtain a section through the terminal phase of occupation. The operation revealed a mediaeval Islamic fortification wall associated with the two stone stairs previously reported. Below this level lies a defensive ring wall with a sloping stone pavement outside. This fortification lies above an ash layer which has been carbon dated at 2770 ± 130 years ago—a date which fits well with Dr. Ghirshman's estimated date for Sialk Cemetery B, which has spouted vessels of a type similar to those found in Hasanlu's Gray Ware cemetery. The occupation

Earliest Maya Temple

From the crumbling ruins of a structure excavated in the Guatemalan jungle the attractive model illustrated here has been reconstructed for the Chicago Natural History Museum.

The temple (known only as E VII sub) is the earliest yet found, dating from about 100 B.C. The structure was discovered at Uaxactun by an expedition of the Carnegie Institution of Washington. The small pyramid on which the temple stands had been enclosed within a later one and the temple itself destroyed. Using the evidence of postholes from the supporting beams of the temple, as well as a

knowledge of later Maya buildings, the thatch-roofed temple could be reconstructed.

On either side of the four stairways which lead up to the temple can be seen conventionalized jaguar masks, probably representing rain gods. Each of these is six feet high. The style of the masks shows a connection between Maya art and the early Olmec style of southern Vera Cruz.

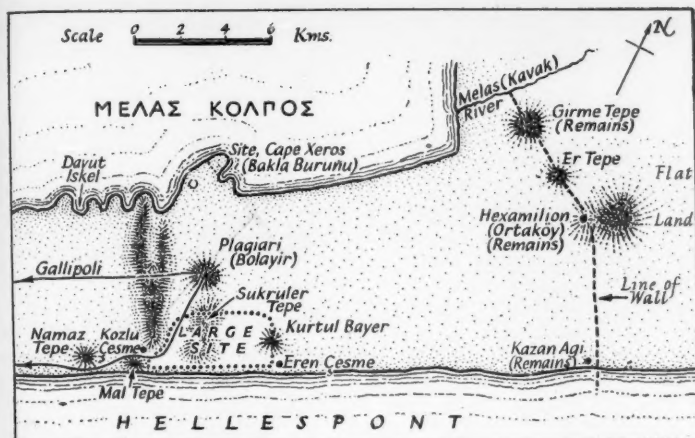
Visitors to the Chicago Natural History Museum will now have an opportunity of seeing the only well preserved prototype of the Classic Maya architecture that evolved several centuries later.



Spouted pitcher of dark gray pottery from the Gray Ware cemetery at Hasanlu. Probably early first millennium B.C.

accompanying the fortification wall appears to have ended with a conflagration. A few sherds of Ziwiye-type pottery indicate that Hasanlu and Ziwiye were at least in part contemporary. The pottery found in a level above the Gray Ware cemetery appears to be of Parthian type, having close parallels with pottery from Taxila.

During the season a small sounding was also made at Pisdeli Tepe, which appears to be a pre-Bronze Age mound, and other sites were visited and surface collections made.



The Site of Lysimacheia

Miss Daphne Hereward, formerly of the British School of Archaeology in Athens, has spent considerable time exploring in Turkey. She sends the following account of her identification of an important Hellenistic city near the Hellespont:

Lysimachus, the Hellenistic king, founded the city of Lysimacheia somewhere in the Gallipoli peninsula in 309/8 B.C. Manuscripts of Ptolemy (iii.11) identify it with Hexamilion, which the Turks call Ortaköy, but this does not fit the actual figures of Ptolemy, which put it farther west. Other evidence is either inconclusive or else strongly indicates a site nearer Cape Xeros (Bakla Burunu), e.g., Pliny iv.47; Livy xxxviii.40; and above all Appian, *Civil Wars* iv.88, which shows that it was near the ancient site of Kardia, a city which was destroyed by Lysimachus. Kardia seems to have been on Cape Xeros; to the

evidence adduced in Müller's note on Ptolemy iii.11 we must add Coronelli's map (Venice 1696) that marks it there, and the fact that in 1955 we found there fifth and fourth century Attic pottery, an ancient rock-cutting for launching a ship, and received reports of an ancient city, and the finding of a sculptured head and coins.

Lysimacheia should therefore be near Plagiari (Bolayir), and there is in fact a large site just south of it, on Sukruler Tepe. Inscriptions had been dug up in a field there, one with standard measures as from an Agora, and two lists of *strategoï*. Fluted column drums from the same site are now in Bolayir, while marble chips and antiquities are found just below the surface all the way from Kozlu Çesme and Arab Yolu Çesme on the west to Kurtul Bayir and Eren Çesme on the east. An important city certainly must have existed here, and the indications are that it, not Hexamilion, was Lysimacheia.

Face Lifting at Luxor

From two *Newsletters* (February and March, 1958) of the American Research Center in Egypt we have extracted an account of prospective improvements to be carried out at Luxor. These developments will markedly improve the appearance of the area. Edward F. Wentz, Director of the Center, describes them as follows:

In mid-January President Nasser, accompanying the Indonesian President Sukarno, made his first visit as President to Luxor. During his tour of the monuments he expressed great interest in the antiquities, and remarked that care must be taken to ensure their preservation and that it would be a good idea to set up a special committee to see to the task. Very shortly after his visit the committee was formed. By February first its members had already arrived in Luxor to make plans for extensive alterations in this most famous of Upper Egyptian sites. An expenditure of four million pounds is contemplated to make the region more attractive to tourists, and of this sum five hundred thousand pounds has already been made available. It is said that the work is to be completed within six months. Since the antiquities of ancient Thebes and the necropolis on the opposite bank will be affected, the well known Egyptian archaeologist, Zaki Saad, is a member of the committee.

The project envisages the construction of a new station, the tearing down of all buildings in the street running from the station to the Luxor temple, as well as those north of the Winter Palace Hotel, and the replacing of all these structures with modern buildings, the widening of the cornice from

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Luxor to Karnak, and the erection of two casinos. New landing places will be made on both sides of the Nile, and the roads leading to the necropolis on the West Bank will be improved. Finally, the inhabitants of Qurneh will be evicted from their houses among, or actually in, the tombs of the Theban nobles. If this program is carried out, Luxor will have a completely changed appearance.

Since all buildings are to be cleared from the Luxor temple eastward, it should be of archaeological interest to examine the site for remains of the ancient city, which may well have existed in that area. Chahata Adam, the able archaeologist who has been greatly interested in the problem of ancient Thebes, hopes that a sum will be allotted for the investigation of any foundations that may be revealed. Unfortunately, when the park east of the Luxor temple was laid out, no attention was paid to the vestiges of early dwellings found in the course of the work.

It will be a boon not only to tourists but also to archaeologists if the present inhabitants of the tombs of the nobles at Qurneh are asked to leave. While it may be a pleasant experience to have a glass of tea offered by a villager while one is at work in *his* tomb, the presence of livestock, furniture, clothing, and an interested audience is definitely an obstacle to concentrated study. Some years ago a model village was erected for these tomb-dwellers in the plain, at some distance in front of the Colossi, but all efforts to get them to inhabit it have so far proved ineffectual. Since orders for removal now come from the President, we may expect to see them carried out.

Progress of Index

Since our announcement of the forthcoming publication of a general index to *ARCHAEOLOGY*, Volumes 1-10, we have received numerous inquiries as well as a number of orders.

We are glad to be able to report that work on the index is approaching completion. However, both the printing and the exacting proof-reading will take considerable time. It is doubtful, therefore, whether the index will be ready much before the end of the year. A definite announcement will be made in a later issue.



Roman bath found at Sremska Mitrovica, Yugoslavia

Roman Bath in Northern Yugoslavia

We learn through the courtesy of Mr. Branko Vasilic that an interesting Roman bath has been discovered in the Yugoslavian city of Sremska Mitrovica during the course of digging foundations for a housing project. Mr. Vasilic was the architect in charge; he is also curator of the local museum.

Sirmium, as the Romans called this town, was an important post on the Sava River (northwest of Belgrade). Here we show a portion of the bath found there. One room (seen at lower left of photograph) is apsidal; several

other rooms were furnished with hypocausts. In the fill were found fragments of mosaic pavement with geometric designs, pieces of colored marble revetment which must have come from the walls, and some bits of plaster with painted fresco decorations showing plant motives. Apparently some additions and repairs were made to the structure in the Late Roman period.

This discovery has resulted in the area's being placed under government protection with a view to preserving the remains.

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REVIEWS OF RECENT BOOKS

rites of the state religion in roman art, by INEZ SCOTT RYBERG. xvi, 227 pages, 67 plates. American Academy in Rome 1955 (Memoirs of the American Academy in Rome, Vol. 22)

In view of the fact that Roman imperial art, as the author states, found its most characteristic expression in the representation of the state religious ceremonies that commemorated imperial achievements, this comprehensive survey and interpretation of the Roman monuments depicting state religious rites emerges as a basic contribution to the understanding of the whole history of Roman art. The circumscribed theme, too, affords the highest accuracy in observation of stylistic development.

After a brief analysis of the precedents for sacrificial themes and motifs in Greek and Etruscan art, the most important relief monuments of the late Republic—celebrating for the most part the theme of victory in war—are examined. Although by the last years of the Republic the two influences begin to be assimilated, the author holds that it is not until the Augustan age that there emerges an art which "is Roman in both content and form." The main body of the book begins with the most significant of the Augustan monuments, the *Ara Pacis*. In the interpretation of the *Ara Pacis* and the discussion of the traditions which it inspired a large amount of evidence is assembled. This is of special interest to the student of history since the material presented closely reflects the rulers' policies in regard to the cult of the divine emperor, an institution of more political than religious significance.

The compendious study of the monuments bearing the themes of the *suovetaurilia*, *vota publica*, the triumph and the state cult continues the high standards which mark this work. After a chapter devoted to sacrificial themes on coins and medallions, the

two final chapters summarize the entire investigation by presenting conclusions on the use of the motifs and designs and on the major stylistic trends in Roman imperial art.

The book will be a standard work for students of the artistic, religious and political history of Rome because the author has been so thorough in her collection and analysis of material and has taken care to organize and interpret the monuments in such a way that the reader is ever aware of the general plan, despite the detail included. The notes and references, bibliography and plates are of the utmost usefulness.

ANNA S. BENJAMIN

University of Missouri

ARCHAEOLOGY OF NEW JERSEY, Volume Two. *The Abbott Farm*, by DOROTHY CROSS. xiv, 215 pages, 17 figures, 46 plates, 14 plans, 1 graph, 21 tables. The Archaeological Society of New Jersey and The New Jersey State Museum, Trenton 1956 \$7.00

Compared with most of the sites whose excavation has been described in this journal, those of the Delaware River drainage are relatively barren. They lack almost completely those exotic materials which have so often contributed to the glamor surrounding archaeology. While excavations have taken place throughout the Delaware Valley during the past three-quarters of a century, few sites have been dug consistently or professionally. Consequently, although artifacts in private and museum collections are numerous, significant results for an understanding of the prehistoric occupation of this area are meager.

Of those sites which have contributed most to our knowledge of the aboriginal occupation, one of the most significant is Abbott Farm, which extends along the Delaware River bluff just

south of Trenton. It has been both a focal point and reference point for Delaware Valley archaeology since 1872 when Dr. C. C. Abbott, physician turned archaeologist, first reported on the "palaeoliths" found there. From that time on, the Abbott Farm area was the subject not only of intense controversy but also of several large-scale excavations.

The last of these was that directed by Dr. Dorothy Cross as part of the New Jersey Archaeological Survey. Five years of uninterrupted digging yielded probably the greatest mass of material ever excavated from one site in the eastern coastal area. The raw statistics are staggering: 676,324 cubic feet of earth removed from 173,732 square feet; 245 pits and hearths uncovered; 88 individual remains excavated, 6063 arrowpoints, 7370 blades and spearpoints, 233 knives, 1454 scrapers, 767 drills, 969 miscellaneous stone artifacts, 116 axes, 81 celts, 7 adzes, 192 pestles, 9 semi-lunar knives, 82 specialized stones, 1525 hammerstones, 411 netsinkers, over 1000 copper beads, 57 bone objects and over 30,000 pieces of pottery. Such a mass of material from so pivotal a site deserves a monograph; and Dr. Cross has devoted the second volume of her *Archaeology of New Jersey* to this material.

Recognizing the role which Abbott Farm has played in setting the tone of Eastern Archaeology, Dr. Cross has written an interesting introductory chapter surveying the controversies surrounding Dr. Abbott's original discoveries. The major portion of the volume, however, is devoted to a classification of the materials recovered. Because of their extent, their description is virtually a catalogue of Delaware Valley artifacts. In this tedious and painstaking task Dr. Cross has performed a valuable service.

Unfortunately this site, so important

in its quantity and range of materials, is identical with almost every other site in the area in its lack—except for a restricted and relatively late time zone—of any clear-cut stratigraphy through which an adequate chronology can be developed. Dr. Cross is thus thrown back, especially for the earlier horizons, upon a technique through which typological distinctions are translated into chronological differences. The conclusions thus derived are inevitably tentative and, in some cases at least, questionable. Until the problem of chronological succession is solved through the excavation of stratified sites or through the relating of single-component sites to one another, much at Abbott Farm, as through the entire Delaware Valley, will still remain a mystery.

JACOB W. GRUBER

Temple University

L'ART DE LA CRÊTE NÉOLITHIQUE ET MINOËNNE, by CHRISTIAN ZERVOS. ix, 524 pages, 807 figures, 1 map, 8 color plates. Éditions "Cahiers d'Art," Paris 1956 \$30.00

With this large and handsome volume is inaugurated what is virtually a photographic encyclopaedia of Aegean art. Besides the present volume, six more are announced as in preparation: Cycladic art, the art of Neolithic Greece, Mycenaean art, Greek Geometric art, Archaic Greek art and Classical Greek art. All will be in the same large format (38 x 28 cm.), presumably with an equal quantity of illustration of the quality shown here.

Zervos' previous photographic collections are well known to art lovers and archaeologists, but these earlier efforts were more extensive in coverage, less detailed in treatment. Here, for the first time, the great treasures revealed by excavation on the island of Crete are thoroughly presented in 807 figures; the number of separate objects is far greater. Every kind of Cretan pottery from the period before the Dorian invasion, every effort in the plastic arts, all varieties of glyptic art, utensils and weapons, jewelry, cult objects, written documents, as well as the buildings in which these were found, are presented in excellent photographs. The large size in which most of the objects are shown enhances appreciation of them. Some of the photographs, however, are not in focus, and the au-

thor's propensity for black backgrounds detracts from some of the objects.

The text, little more than one-sixth of the book, is of proportional importance. Besides a lengthy discourse on the general nature of Cretan art, which exaggerates the artistic worth of Minoan artifacts to the extent that it almost defeats its own purpose, there is an "Aperçu historique" which is the most blatantly pro-Minoan account to hit the press in a long time. It takes no cognizance of recent developments which might tend to play down the supremacy of the Minoans in some periods and even show them to have been subservient to the Greek mainlanders in the Late Bronze Age. The new terminology and dating introduced here are explained at the end of the volume in "La chronologie minoenne," by Nicolas Platon. This is a thorough review of the various chronological schemes, together with valuable comments from one who is most familiar with recent finds in Crete. Platon's new terminology is not fully satisfactory, since he, too, still chooses to play down Mycenaean influence in Crete. His comments on the difficulties of Early Minoan chronology are well taken, but the solution may lie along other lines than those suggested. The lowering of the beginning dates of the Early Minoan period are now somewhat justified by an even greater lowering of Neolithic dates, for the recent study of the Neolithic pottery of Knossos indicates strongly that the first Neolithic culture to take root in Crete came from Anatolia about 3500 B.C., thus explaining the lack of painted pottery there when it was common in mainland Greece. The first painted pottery of the Early Minoan period is probably to be associated with the first painted pottery in the Cyclades, and the date of 2600 may not be far off.

Zervos shows his religious bias in the lengthy "Notes sur la religion." The description of various excavations from 1877 to the present is useful and well documented, but the section on "Écritures de la Crète minoenne" belies the volume's 1956 date, for the latest references are a few in 1954, and the theories presented here go better with the earlier date. The belittling of Ventris' work in deciphering Linear B, the insistence on the identity of the A and B scripts, the playing up of Georgiev's work, are all indicative of prejudices which should by now have been laid

by. Cretan art and culture do not need such support, for in themselves they are capable of winning due appreciation. The plates speak much more eloquently of Cretan art than does the text. All will await with impatience the appearance of the companion volumes.

SAUL S. WEINBERG

University of Missouri

THE ANCIENT CIVILIZATIONS OF PERU, by J. ALDEN MASON. xx, 330 pages, 6 figures, 64 plates, 2 maps. Penguin Books, Baltimore 1957 \$1.25

In this comprehensive summary of a large and confusing body of information, the author makes an extraordinarily conscientious, well organized effort to present Peruvian cultures in terms of current research. Such summaries are particularly difficult tasks because of the diverse fields of research involved, each of which calls for critical analysis of available information and contradictory opinions. Some criticism can be expected from specialists, but the book is characterized by the great fairness with which differing views are treated, often lightened by amusing touches.

The three sections cover the record of Peruvian cultures reconstructed from material remains, the history and ethnology of the Inca based on written records, and the technology of arts and crafts. A good discussion of historical sources and a glossary of Spanish and Inca words follow in an appendix. The bibliography, cross-referenced by topic, is excellent.

The section on the Inca, with original and stimulating interpretations of historical events, is the best. The others, also stimulating, involve many controversial problems such as trans-Pacific culture contacts, the organization of the archaeological evidence in terms of a sequence of developmental stages, chronological relationships and datings.

The developmental stage sequence accepted by Mason grew from Larco Hoyle's interpretation of North Coast prehistory. Adopted and modified, it has been extended to broader areas in an attempt to correlate and interpret local sequences. A single example will illustrate the weakness of the system and how it can distort evidence.

The Urbanist period is described as a late phase of development everywhere in Peru in which cities were



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built as a natural consequence of population increase and of culture having reached a certain stage of progress. Although large cities were being built on the north coast, no cities which can be assigned to this period are found in the southern highlands, and the only south coast site of this time which may qualify as a city is Tajaraca in the Ica valley. On the other hand, a number of very large occupation sites which qualify as cities but which belong to other periods are known from the highlands and coast. Probably the earliest is a large urban settlement type of the early phase of the Nasca tradition on the south coast, such as Tambo Viejo in the Acari valley. Cahuachi, in the ravine of Nasca, which may have been started during the earlier Experimental period, may be a similar type of settlement. Both sites were abandoned subsequent to an early phase in the Nasca polychrome pottery sequence which is assigned to an early phase of the Florescent period preceding the Urbanist in the developmental scheme.

This is only one of the many dilemmas which the developmental scheme presents. In any one period there is a great diversity of culture in the Andean region which cannot be gauged simply in terms of stages of progress. Instead, it is more helpful to look at Peruvian prehistory less as a regular progression of changes and more as a complex history of diverse cultures with some traditions in common as the result of the wide spread of some culture traits, including three horizon styles.

DOROTHY MENZEL

Mount Vernon, New York

TOMBS, TEMPLES AND ANCIENT ART, by JOSEPH LINDON SMITH. Edited by CORINNA LINDON SMITH. xv, 349 pages, 47 illustrations. University of Oklahoma Press, Norman, Oklahoma 1956 \$5.00

One of the last of the long line of artist-draftsmen who were for so many generations an accepted part of every Grand Tour was Joseph Lindon Smith, who made a special niche for himself in Egyptian archaeology by developing a painting technique which reproduced the textures of ancient sculptures with incredible accuracy. "Uncle Joe," as most people addressed him, spent his early manhood painting conventional subjects in Italy and

France. But his reputation rests on the great series of canvases scattered through American museums recording so sensitively and accurately ancient ruins around the globe. Uncle Joe's connection with Egypt, the country with which his work and this book of memoirs are mainly concerned, did not commence until he was thirty-five years of age. That was in 1898 and the connection remained constant until his death in 1950.

At the turn of the century Egypt was a romantic paradise for foreigners. Social life was dominated by the English aristocracy in a setting of natural splendor and incredibly cheap labor. The buried antiquities were being investigated by a group of scholars, some already famous, others to become so, and by a small group of wealthy amateurs, a class to which archaeology has owed so much in the past two centuries.

Uncle Joe knew both groups and impartially writes of both. Perhaps the most charming sections are those dealing with the amateurs. They take us into an enchanted world where everyone was wealthy, impulsive and perhaps a trifle mad. The odd moments free from romantic excavation were delightfully spent in dashing from dahabiah to dahabiah where sumptuous luncheons were served. On one most pressing occasion when a royal tomb was about to be entered by its discoverer, convention was flouted and lunch was served to the elegant excavators right in the Valley of the Kings by an English butler assisted by only a few footmen from the dahabiah. That same valley, now so sacrosanct, was the setting for a moonlight fantasia, rivaled by fancy-dress balls held amidst the ruins. And the solemn temple of Karnak inspired Lord and Lady Carnarvon as the perfect spot for a formal dinner in moonlight, the catering correctly supplied by the Winter Palace Hotel. Future generations unable to indulge in similar frivolities will be grateful for so vivid a picture of a fabled past.

Amidst these gay and charming narratives the author records his observations on objects and archaeologists known to him, and he seems to have known everyone of consequence in the archaeological worlds of Egypt, Mexico and the Orient. It is these valuable, first-hand observations of an artist amidst archaeologists that will interest

the general reader. These observations are set in a framework of the history of Egypt where there are a few errors (e.g., a famous sonnet ascribed to Keats, actually the work of Shelley), fortunately of little consequence. Few artists have also been writers and in these memoirs we have a spontaneous and spirited view of what now seems to have been the golden age of archaeology in Egypt.

JOHN D. COONEY

The Brooklyn Museum

THE BRONZE VESSELS IN THE RIJCKSMUSEUM G. M. KAM AT NIJMEGEN, by MARIA H. P. DEN BOESTERD. xxxi, 90 pages, 5 figures, 18 plates. Department of Education, Arts and Sciences, Nijmegen 1956 10 guilders

Ulpia Noviomagus may not be the most spectacular of Roman sites, but it is one of the best managed and best published. About 1900 the expanding city of Nijmegen might have swept away an important Roman cemetery, but during the following decade an enlightened and public-spirited citizen, G. M. Kam, rescued all that he could, and upon this collection was founded in 1921 the Museum Kam, which now includes material from other important sites in the neighborhood. For fifty years Nijmegen has seen a vigorous program of excavation and publication under a distinguished line of directors. Would that all municipalities and museums displayed the same energy and sense of responsibility!

The most recent member of an imposing series dealing with Roman Nijmegen is Miss den Boesterd's exemplary presentation of 314 bronze vessels. Most of them are plain; some are embellished with appliqué masks, medallions or decorative handles; two ointment or incense pots are ornamented in high relief; one magnificent "Hemmoor bucket" of the third century has a richly figured band below its rim. Several vessels are signed by the maker or carry incised indications of ownership.

The text comprises a generalized introduction and a descriptive catalogue. Eight solid pages of "publications consulted" are convincing evidence that the author has left no visible stone unturned in the pursuit of parallels.

HOWARD COMFORT

Haverford College

JEWISH SYMBOLS IN THE GRECO-ROMAN PERIOD. Volumes 5 and 6: *Fish, Bread, and Wine*, by ERWIN R. GOODENOUGH. Volume 5: xxii, 205 pages, 186 figures. Volume 6: xii, 256 pages, 83 figures. Pantheon Books, New York 1956 (Bollingen Series XXXVII) \$15.00

The latest two volumes of this massive study are devoted to the Jewish use of symbols of food, specifically fish, bread and wine. After listing the Jewish representations of fish and other sea creatures in paintings and mosaics, notably in synagogues and tombs of Palestine, Tunisia, Rome and Dura, and the pagan representations of such symbols throughout the ancient Mediterranean world, Goodenough maintains that the Jewish use of fish symbolism is derived from pagan prototypes and that the Christian is derived from the Jewish. He notes, for instance, that the dolphin appears frequently as a symbol of immortality. The fish meal, a feature of both Jewish and Christian ritual, was "a sacramental communion with the Deity," and it symbolized the hope of resurrection and the future life. Sim-

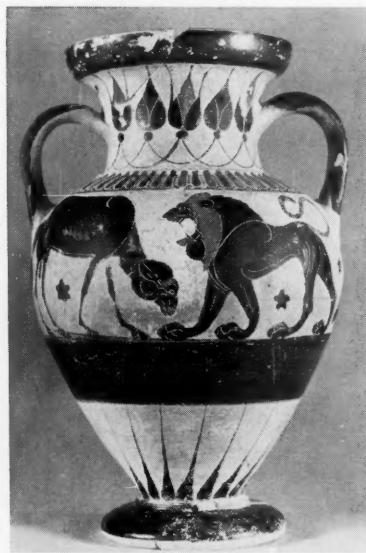
ilar concepts are involved in the symbolism of bread.

The section on wine takes up more than half of Volume 5 and the whole of Volume 6. Several lengthy chapters are concerned with the concept of "the Divine Fluid" in the literature and iconography of Mesopotamia, Syria, Egypt and Greece. Much of this detail, though interesting in itself, will seem irrelevant to many a reader, but Goodenough defends it as furnishing the essential background for the sources of the Jewish use of wine symbolism. In the chapter entitled "The Divine Fluid in Greece" he explains the frequent presence of vases in Greek tombs as due to the importance of the symbolism of fluid in popular Greek ideas of the future life. Much space is given to the Dionysiac symbols (phallus, wine, snake), all of which indicated the power of the god to confer personal immortality. Myths involving fire are included here, since the Greeks regarded fire as a fluid, according to Goodenough. Phallic representations, which the author seems to play up excessively, are also placed in the category of "fluid sym-

bolism." These various symbols of fluid are interpreted as basically representing the life-giving powers of the deity. The god releases this vital substance as his body fluid, the goddess as her milk. From these concepts spring such practices as temple prostitution, pouring of libations on graves, and ceremonial drinking of wine.

Such pagan concepts with regard to eating and drinking, especially in connection with bread, fish and wine, were borrowed by the Jews and given new interpretations. Ancient customs springing from this symbolism have survived in modern Judaism, notably in the cups of wine at Passover and in the use of wine in the Kiddush ritual and in connection with circumcision and marriage. All these practices Goodenough regards as connected with the hope of the Messiah and the promise of salvation.

In adopting pagan symbols and rites, the Jews selected only those which assured them a share in the divine life and immortality, and to these they gave a new mystical meaning. The use of these symbols in Christian tradition stems from the same psychic urge,



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Chalcidian amphora by the Phineus painter. Height 28 cm. Ca. 530 B.C.

with the added idea that in the Eucharistic meal the Christians felt that they actually ate and drank the Messiah. While the author may be (and has been) criticized for not dwelling upon the differences between the Jewish and Christian interpretations of these symbols, we should note his insistence that he is attempting rather to bring out the common elements between the two. Even so, we may question his observation that in the Messianic symbolism "the chief differences are on the surface."

As in the earlier volumes, one is impressed with the richness of the materials, but overwhelmed by what seems an excessive mass of detail, some of which appears to have only a tenuous connection with the main arguments. Somehow, despite the numerous illustrations and quotations and Goode-nough's fluent arguments, doubts about the validity of many of the interpretations are bound to arise. One cannot help wondering whether Jews ate fish on ceremonial occasions and on the Sabbath chiefly because it was a more luxurious article of food than the grain and vegetables which formed the monotonous daily diet, whether perhaps wine was drunk on significant occasions because it was superior to water, and whether prayers involving bread may have represented nothing more mystical than gratitude to God for bestowing on man what was then his "staff of life."

Like the four previous volumes, these two are sumptuously produced, richly illustrated and supplied with detailed indexes. How many volumes are still to appear is not indicated.

HARRY J. LEON

The University of Texas

BRONZE CULTURE OF ANCIENT CHINA: An Archaeological Study of Bronze Objects from Northern Honan, dating from about 1400 B.C.—771 B.C., by WILLIAM CHARLES WHITE. xviii, 219 pages, 11 figures, frontispiece in color, 100 plates (6 in color), 7 charts, 3 maps. University of Toronto Press, Toronto 1956 (Museum Studies, No. 5) \$10.00

This is a study of ten groups of related bronzes from the exceptionally rich collection of early Chinese bronzes at the Royal Ontario Museum. It is a companion volume to the author's *Bone Culture of Ancient China* (Toronto 1945), a study of oracular and

other types of bone artifacts from the same region. Bishop White, Keeper Emeritus of Far Eastern Antiquities, personally collected most of these bronzes during his long years of residence as Anglican Bishop in Honan Province, the area in which the earliest known capitals of the Shang (ca. 1766—ca. 1122 B.C.) and Early Chou (ca. 1122—771 B.C.) dynasties were located. Because he was in the general area where the bronzes were found, he was able to acquire groups from the same tomb; thus, although these objects did not come from scientific excavations, he was in a position to make reasonably certain of their provenance.

Each of the ten groups is preceded by an essay giving details, as far as possible, of the sites, excavations or other sources of the objects, conditions under which the bronzes were obtained and other such information. This reviewer would like to see these informal but informative and highly interesting essays considerably expanded and arranged chronologically. Coming from a student and a witness of the great early finds and the beginning of scientific excavation, they would form an exciting chapter in the history of Chinese archaeology. Each object, about 150 in all, is carefully described and illustrated, and clear rubbings of all inscriptions are given. Not every object treated in this book is in the collection at Toronto. In an effort to make this study more useful, the author has included objects from other collections when convinced that they belong to one of the sets.

The work is written with caution and reserve, but in spite of the persuasive circumstantial evidence, some readers may question the dating of some of the sets—especially when this dating depends on inscriptions. One difficulty with inscriptions on Shang bronzes is that they are typically very short and highly formulated, thus resulting in a high incidence of identical phraseology. In "Some Early Chinese Bronze Masters" (*Bulletin of the Museum of Far Eastern Antiquities* 16 [1944]), Professor Karlgren attempted to group Shang bronzes into synchronous sets, but admitted that he could not do it by such inscriptions alone. Lacking evidence of several objects coming from the same tomb, Karlgren had to rely upon other guides for his grouping of Shang vessels. Bishop

White, on the other hand, had good reason to believe that his sets came from specific burials; thus objects said to be from the same tomb are grouped together, and it is interesting to note that there is a considerable degree of coincidence in the inscriptions on objects within the same group.

It may be said that no other collection outside of China contains so many pieces that may be related to each other owing to knowledge of provenance. This book, based on this important information, is the culmination of many years of work. It is unique among the many studies on early Chinese bronzes, and it is indeed a significant contribution.

R. C. RUDOLPH

*University of California
Los Angeles*

THE AEGEAN AND THE NEAR EAST: Studies Presented to Hetty Goldman on the Occasion of her Seventy-fifth Birthday. Edited by SAUL S. WEINBERG. xvi, 322 pages, numerous text figures, 43 plates. J. J. Augustin, Locust Valley, New York 1956 \$10.00

This East-West medley in honor of Hetty Goldman differs from the common run of *Festschriften*. It measures up to the purpose of the editor to make it "a volume of substantial essays on a central theme," rather than the more usual heterogeneous collection held together only by the binding.

The first two articles deal with anthropological problems which I am not competent to discuss critically. The Classical archaeologist becomes acutely aware of the cleavage that has developed between anthropologists and archaeologists in their approach to the past. They no longer speak the same language. Here is a sample sentence from the article by Robert W. Ehrich: "Since this approach is a classification, it must be a hierarchical system with regard to levels of abstraction, based on the supposition that the categories on each level are defined by intra-group resemblances and inter-group differences, and that, within each category, the greater the number of their resemblances and the more intense their likenesses in terms of their complexity, the greater is the degree of presumed relationship between the units of which it is composed." Or, as one might say: "Similar things are likely to be related." That the differences are

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By CASPER J. KRAEMER

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intra-group as well as inter-group I gather from a footnote of the article by Robert J. Braidwood: "One of my Old World colleagues once observed that they (the Americanists) have to 'write learned about little' to keep themselves employed full time. This is unfair." And if it is unfair to make the statement so it might be to quote it, but perhaps not wholly so.

After this somewhat athematic beginning most of the authors observe the unity of theme. C. W. Blegen shows that "the bridge (of communications) between the east and the west during the third and second millenniums B.C." was kept open through the waterways along the south coast of Asia Minor. Hâmit Zübeyr Koşay points to a connection (through tradition in art) between the third millennium B.C. and the present time in patterns of Anatolian jewelry. Machteld J. Mellink, in a well reasoned article, sounds a warning against "an unqualified suggestion of an Early Bronze Age *koine*," by emphasizing local differentiations, intelligible in the light of such "contact by trade, exchange, technical and artistic influence" as the archaeological material points to. J. L. Benson uses seal impressions from Cyprus to illustrate "cultural stimulation from both east and west." Cyrus H. Gordon explains Homeric reference to *δημιουργοί* in terms of wandering Ugaritic guilds. W. F. Albright—in the field of linguistics—seeks to shorten the gap between the Late Bronze Age and the Early Iron Age, and quotes Alan J. B. Wace, expressing hopes that the discovery of an inhabited site of the Early Iron Age will some day prove the earlier introduction of the Phoenician alphabet. George M. A. Hanfmann presents a preview of a more extensive study of Eastern Greek wares found at Tarsus, in which he shows "Greek contacts with the coastal cities of Cilicia and North Syria" during the Iron Age. Edith Porada, aiming at "the clarification of East-West relations," traces the origin of some seals, found over a wide area from Syria to Sparta—and concludes that the center of their production was Rhodes. Richard D. Barnett faces squarely the problem of "intercourse and cross-fertilization which took place between peoples in antiquity," and shows the Oriental elements that influenced Hellenic culture. P. Amandry discusses the

Oriental origin of bronze cauldrons with bull protomes, and their development in Greece and Etruria; and Gladys and Saul Weinberg show the earliest occurrence of the myth of Lydian Arachne on a Corinthian aryballos.

East-West relations of Classical times must take account of the Persian Wars and their effect upon Greece. Benjamin D. Meritt reviews the whole controversy of the epigrams from the Battle of Marathon; and Dorothy Burr Thompson discusses the Persian spoils acquired by the Athenians; she suggests that they may have been carried in triumph in the Panathenaic procession, and became "absorbed into the ritual."

In none of the articles is the East-West relation so fully substantiated—or over so long a period—as in an article on "The Canaanite Jar" by Virginia R. Grace. By means of illustrations from Egyptian tomb paintings and by extant examples from Palestine, Syria and Egypt, in the east—and from Athens, Menide, Argos, Mycenae, to Ampurias (Spain) in the west—her "article follows the travels of the Canaanite Jar, and the rooting and development of the shape in new countries" from the eighteenth to the first century B.C. Is it possible to extract from a plain, utilitarian object, such as a terracotta wine container, a story of absorbing interest, on the theme of East-meet-West? The answer is yes. The article furthermore demonstrates the need for the highly specialized approach to archaeological inquiry into objects of a specialized nature.

In a few other cases the authors have interpreted less rigidly the injunction toward unity of theme. Three articles deal with problems of Mycenaean antiquities without obvious Anatolian overtures. George E. Mylonas illustrates a type of Late Bronze Age figurine of a seated goddess, frequently placed in children's graves; Frances F. Jones publishes three Mycenaean figurines in the Art Museum of Princeton University. Alan J. B. Wace reviews the evidence for the chronology of Mycenae at the end of the Bronze Age. He reiterates his adherence to the traditional dates of the Trojan War (Eratosthenes 1183 B.C., *Parian Chronicle* 1209), and attempts to reconcile these with the results of excavation. This places the Trojan War and the reign of the Atreidae approximately at the

time of—or subsequent to—the destruction of the major strongholds of Greece, an event more logically equated with the invasion of Greece by the Dorians. In his recent book, *Ancient Mycenae*, George Mylonas has made a fresh approach to this crucial problem by down-dating the "Treasury of Atreus" to the middle of the thirteenth century. The definite solution to the problem will, I believe, be forthcoming when all the evidence from Troy and Pylos has been presented.

The last three articles bring us to post-Classical times. O. Neugebauer writes on Hipparchus of Nicaea in Bithynia, "the greatest astronomer of antiquity." George C. Miles publishes a collection of Islamic coins from Tarsus, chiefly eighth to early tenth century. The final contribution, by C. H. E. Haspels, is an article of great interest about the earliest European travelers in inner Phrygia.

In this symphonic orchestration on the East-West theme one instrument is conspicuous by its silence: there is no mention of the impact of Judaeo-Christian religion upon Western thought and mores, nor are there any articles dealing specifically with the archaeology that would illuminate this phase of the relationship between East and West. We may ascribe this omission to a regrettably rigid departmentalization of archaeology; it does not mar the symphonic effect of the whole.

OSCAR BRONEER

The University of Chicago

CYRENAICAN EXPEDITION OF THE UNIVERSITY OF MANCHESTER, 1952. Edited by ALAN ROWE, with contributions by DEREK BUTTLE and JOHN GRAY. xii, 59 pages, 6 plates, 13 figures (plans, elevations), 1 map. Manchester University Press. Barnes and Noble, New York 1956 \$5.00

Alan Rowe, familiar to many especially for his work in Egypt, spent the summer of 1952 in Cyrenaica with a group of colleagues from England, and here reports on some aspects of their work together. We have three essays. One is a typological study of tombs in the vicinity of Cyrene by Rowe himself. The second discusses the city plan of Cyrene, so far as we now know it (Buttle), and concerns itself also with the development of the Doric order there. The third, by Gray, presents a small group of what seem to be Jewish

funerary inscriptions at Tocra (Teuchira) adding single texts from Cyrene and Barce.

The funerary inscriptions, while not particularly enlightening in themselves, have bearing upon the question of the eras used locally in time-reckoning and suggest the potentialities of Cyrenaica for the knowledge of the Hellenistic Jewish dispersion. The analysis of the tomb types is helpful in setting in their proper perspectives the earliest circular "tumulus" burials and what might be called the "altar-type" tombs, but shows how much more needs to be done on the types of rock-cut tombs, temple tombs and tower tombs (Ptolemais) before the picture can become complete. Particularly important is the discussion of Cyrene's city plan. This is Greek but pre-Hellenistic, and most valuable to have at hand when considering what has been revealed by Johns' excavations at Euhesperides (near Benghazi) and by the excavations at Ptolemais (Tolmeita) now in progress.

CARL H. KRAELING

*Oriental Institute
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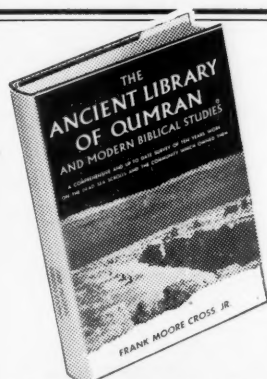
A HISTORY OF TECHNOLOGY, Volume II: The Mediterranean Civilizations and the Middle Ages, c. 700 B.C. to c. A.D. 1500, edited by CHARLES SINGER, E. J. HOLMYARD, A. R. HALL and TREVOR I. WILLIAMS. lix, 802 pages, 695 figures, 44 plates, frontispiece and tables. Clarendon Press, Oxford 1956 \$26.90

Volume II of this monumental work, to be completed in five volumes, continues the high standards set in Volume I. The editors and writers are to be commended for successfully presenting technical matters not readily accessible elsewhere in a style that can be easily comprehended by the general reader. Twenty-three experts have contributed chapters on: mining and quarrying, metallurgy, agricultural implements, food and drink, leather, spinning and weaving, furniture, ceramics, glass and glazes, pre-scientific industrial chemistry, the mediaeval artisan, building construction, fine metalwork, roads and land travel, harbors, docks and light-houses, vehicles and harness, shipbuilding, power, machines, hydraulic engineering and sanitation, military technology and alchemical equipment.

Again, as in Volume I, some of the most interesting material is found in excursuses appended to a few chapters. The excursuses in this volume are on parchment, military pyrotechnics, stamping of coins, windmills and ancient cranes.

It would have been foolhardy to attempt to follow a strict chronological pattern in handling technological fields which sometimes show little advancement in two millennia, sometimes reach a zenith in a very early period, and sometimes show remarkable flowering when other aspects of civilization are at a low ebb. The technical arts do not fit into neat patterns of gradual evolution in the ancient period, retardation or retrogression in the Middle Ages, and rebirth in the Renaissance, into which we customarily fit other fields of human endeavor. Consequently there is frequent overlapping of chronological periods and frequent transgressing of the terminal dates set on the title page.

The chapter on shipbuilding does not appear to measure up to the standards of the rest of the volume. The



Ten years later—"the foremost authority on the Dead Sea scrolls" writes "the most comprehensive and up-to-date survey" of

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by FRANK MOORE CROSS, Jr., Harvard Divinity School

WHAT have we learned about the Dead Sea scrolls—their contents, meaning, and history—in the ten years since the first of them came to light? Dealing not just with the material found in Cave 1, but also with that found in Caves 2 through 11, Mr. Cross here discusses *all* the scrolls and fragments that have been and are now being studied. His book reviews the Qumran excavations and the manuscripts on the basis of the author's personal experience in the excavation, decipherment, and interpretation. In analyzing the most recently deciphered manuscripts, he provides information that both illuminates the hitherto obscure history of the Qumran community and disentangles

some controversial questions about the Essenes, early Christianity, and the history of the text of the Bible.

"MR. CROSS is easily the foremost authority on the Dead Sea scrolls today, thanks to his breadth of knowledge and his interest in all phases of research in the field which they represent. The present book is by far the most comprehensive and up-to-date survey of the subject which is now in print; it is also very readable and fascinating to non-specialists as well as to scholars."

—PROFESSOR W. F. ALBRIGHT
Johns Hopkins University

Photographs, maps, index.

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treatment of such controversial matters as the arrangement of oars and rowers and of sails is superficial, the bibliography is wholly inadequate, and documentation is lacking.

Considering the scope of subject matter and excellence of text and illustrations, it is evident that the first two volumes of this set are a storehouse of useful and authoritative information.

WILLIAM H. STAHL

Brooklyn College

DIE HIEROGLYPHEN DER MAYA-HAND-SCHRIFTEN, by GÜNTER ZIMMERMANN. 174 pages, numerous figures, 8 plates. Cram, de Gruyter & Co., Hamburg 1956 (Abhandlungen aus dem Gebiet der Auslandskunde, Vol. 62 [Series B, Vol. 34]) DM 24

Ever since the remains of the Maya civilization became known to the modern world their hieroglyphs have fascinated scientists as well as laymen. Numerous books and articles have been written on them, both scientific and fantastic. At first decipherment was rapid and valuable discoveries were made, especially at the turn of the century. But the pace slackened to a mere trickle of new information and there was general scepticism as to whether it would ever be possible to read these signs. Nevertheless, the late thirties saw a new start and gradually new methods and problems emerged. Zimmermann's book is the most recent in this field. It does not pretend to give new interpretations of specific glyphs but is a catalogue of all glyphs used in the three surviving Maya manuscripts. In this sense it follows an old tradition in German Maya studies, which since Förstemann's interpretations have concentrated especially on the written material. On the other hand, it is new in more than one sense: each glyph is assigned a number on the basis of the representation alone, without using any known value. The only exceptions are the supplementary signs (affixes), which are given numbers below 100. Furthermore, by using dots and bars to indicate the position of the affixes or combinations of principal signs, any of the complex hieroglyphs can be written in a simple row of numerals. For example: 28.42:1340.76; here the glyph 1340 (the *tun* sign) is accompanied by three affixes—28 precedes the main

sign (prefix), 42 is above (superfix) and 76 behind (postfix). The advantage of this system is obvious. Without using a lengthy description any glyph can be expressed in numerals only, understandable to anybody and excluding mistakes. The system is so flexible that new material can be incorporated without difficulties.

The description of the glyphs, the recording of their occurrence in different places in the manuscripts, and their combinations occupy most of the book. Nevertheless, the author goes a step farther and offers some clues for interpretation. He gives no values for specific glyphs but he shows that some can be grouped together. These groups obviously deal with certain categories such as names, the positive or negative aspect of events, or the general theme of the following passage. This at least breaks the mass of material into fragments which are united in general meaning. By this means further research can be concentrated in a definite direction. Information about the deities, as far as they are pictured in the manuscripts, is given in an appendix.

When the first draft of the manuscript was shown by the author at the International Congress of Americanists at Cambridge in 1952, it was loudly hailed as a most valuable contribution to Maya science. Since then its flexibility and interpretation have been augmented, and it is not unlikely that once the glyphic material from the stone monuments is also incorporated this system will be one of the major tools for solving the puzzle of Maya writing.

WOLFGANG HABERLAND

Hamburg Museum for Ethnology

PERU, by G. H. S. BUSHNELL. 207 pages, 13 figures, 71 plates. Frederick A. Praeger, New York 1957 (*Ancient Peoples and Places*, edited by Glyn Daniel) \$5.00

The extraordinary popular interest in archaeology, not only in this country but abroad, has encouraged the writing of a small library of books on all phases of the subject. The most recent is a whole series, produced under the editorship of Dr. Glyn Daniel, with the general title *Ancient Peoples and Places*. According to present plans the books will deal with limited areas which have produced data of exceptional interest. No attempt

will be made to cover systematically the whole of the archaeological field, and it is quite likely that sites in Great Britain will be more fully represented than those elsewhere.

The format is tasteful. Excellent type well set, generous margins, well drawn figures and map, and decidedly superior photographs all indicate the publisher's desire to make the volumes physically pleasurable to handle.

Peru is the first to appear, and one's immediate impression is that it is written with authority. The author is curator of the Cambridge University Museum of Archaeology and Ethnology, knows the museum material, and has traveled extensively in Peru. He follows a chronological pattern leading from the early hunters and the early farmers through the "Formative," "Classic" and "Expansionist" periods to the City Builders and the Imperialists or Incas. The evidence, especially of the pottery, is skilfully handled and the conclusions lucidly presented.

The book was my companion on an archaeological tour of Peru in 1957, and I can recommend it without reserve as a faithful guide.

CASPER J. KRAEMER, JR.

New York University

THE LOST PYRAMID, by M. ZAKARIA GO-NEIM. xv, 175 pages, 24 figures. Rinehart and Company, New York 1956 \$3.50

This highly readable and exciting account of the excavation of a "new" pyramid appeared only two years after the newspaper accounts. It tells the story of the discovery of a second step pyramid at Sakkara and the excavation of part of the pyramid complex. Written for the non-specialist, the book describes the stages of the excavation and the excavator's joys and disappointments as the work progressed. It will be remembered that the fine alabaster sarcophagus was found to be empty, although the sliding panel which provided the only opening was sealed in ancient times. In an attempt to explain this curious circumstance, the author discusses the origin and development of the pyramid, and his tentative solution to the problem deserves consideration. The book is a splendid introduction to pyramid archaeology.

There is, alas, one serious defect: the editing and proof-reading are in-

LEADING MODERN ARCHAEOLOGISTS

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credibly slipshod. Papyrus Westcar (page 11) for Papyrus Westcar, Khay Khasekhem ui (page 10) for King Khasekhemui, Thisite (page 67) for Thinite, and Userkhaf (pages 34, 148) for Userkaf illustrate the point sufficiently. On page 9 the names of the kings and the sentence in which they occur have suffered a sea change. The spellings Dashur, Shepseskaf, Nioussera and Hetephras are simply not admissible. The phrasing is not always happy, as in the description on page 16 of a well known ceremony as "a ritual sprint performed by the king to test his vitality." The reader who experiences difficulty in locating the plan of the substructure in the illustrations will discover that it has been omitted. With errors of this sort so frequent, one may justifiably wonder whether the dimensions are accurately recorded.

In spite of these numerous errors, the reviewer hopes that the book will reach a large audience. The excavation of the unfinished step pyramid has barely begun, and future work will undoubtedly solve many of the problems and raise still more. This preliminary account cannot help but en-

courage an interest in a worthwhile undertaking. The reader whose interest has been stimulated might like to follow up Ganeim's book with the lucid articles by J.-P. Lauer: "Les pyramides à degrés, monuments typiques de la IIIe dynastie," in *Revue archéologique* 47 (1956), 1-19; and "L'apport historique des récentes découvertes du Service des Antiquités de l'Égypte dans la nécropole memphite," in *Comptes rendus . . . Académie des Inscriptions et Belles-Lettres* 1954, pages 368-379.

WILLIAM KELLY SIMPSON
New York

ART IN COINAGE, *The Aesthetics of Money from Greece to the Present Day*, by C. H. V. SUTHERLAND. 225 pages, 147 figures. Philosophical Library, New York 1956 \$7.50

There has long been need for a book such as this. To anyone concerned with coins it seems strange that the aesthetics of coinage, in contrast to those of the kindred arts of sculpture and painting, have been so generally neglected. A few recent publi-

cations such as C. T. Seltman's fine *Masterpieces of Greek Coinage* have called attention to the aesthetic appeal of particular coinages, but this is the first attempt to present the art history of money from its beginnings to the present day. The undertaking was a formidable one, embracing twenty-five centuries and all of western civilization; it has resulted in a book which is not only interesting and informative but permeated with the author's own enjoyment of the material.

Roughly one half the book is devoted to Greece and Rome, and to this admittedly prejudiced reviewer these are the most engrossing chapters. During the first five centuries of monetary history Greek artists, working as sculptors in a miniature field, experimented with their new medium. To it they brought naturalism, a feeling for the decorative and a finely developed sense of composition which produced individual designs that have rarely been equaled and never excelled. The art of portraiture, at first of gods and then of humans, was originated by the Greeks and perfected by the Romans, whose coinage is distinguished

not only by its masterly realistic portraits but by its use of coin reverses as a means of propaganda for imperial achievements and policy.

The fall of Rome resulted in the destruction of the Graeco-Roman artistic tradition and its replacement in the East by the decorative formalism of Byzantium and in northwestern Europe by a primitive art, crude and harsh but at times surprisingly effective. In the fifteenth century the work of eminent medalists such as Pisanello created a fresh vision. Absolute realism of human and animal forms returned, and new techniques enabled artists to achieve free and rhythmic designs which had been lacking in the preceding centuries. The introduction of machinery in the sixteenth century and increased emphasis on the economical production of large quantities of currency were deadening influences responsible for the generally spiritless and mediocre quality of modern coinage. The book, however, ends on a hopeful note. Pointing to the excellent work of a group of contemporary medalists, Dr. Sutherland raises the possibility that this renaissance in medallic art may lead to improvement in the standard of the coinage as well.

Examples of successful and unusual coin design illustrate the text. One could wish that more had been included—147 coins is sparse representation for 2500 years—but the selection has been wisely made and the quality of reproduction is uniformly high. Notes on books and public coin collections provide a means of pursuing the study of coins as works of art.

MARGARET THOMPSON
American Numismatic Society

THE BOARDING-BRIDGE OF THE ROMANS.

Its Construction and its Function in the Naval Tactics of the First Punic War, by H. T. WALLINGA. vii, 96 pages, 12 figures, 2 plates. J. B. Wolters, Groningen, and Martinus Nijhoff, The Hague 1956 8.90 guilders

In the first Punic War the Romans for the first time came to grips with a major naval power. Polybius describes how the ships which they were able to deploy were ill-manned and clumsy to maneuver, no match for the disciplined and agile Carthaginian *quinqueremes* which had behind them the whole tradition of Phoenician naval experience. At this crisis of their affairs someone,

Polybius relates (i.22.3-11), suggested to them a contrivance by which they could turn an unpromising tactical situation to their advantage. Dr. Wallinga has devoted a monograph to the elucidation of Polybius's description of this device, and to the discovery of the reasons which led them to adopt it, and adopt it successfully, in the battles of Mylae and Ecnomus. With one exception all previous attempts at explanation have embodied a quite gratuitous and grossly impracticable assumption that the contrivance, a kind of combined boarding gangway and grappling iron, was composed of two sections hinged together. The exception, a German called Haltaus, writing in 1846, was on the right track in rejecting the hinge but wrong in important details. These follies caused Tarn, who is also convinced that Polybius's device would have capsized a contemporary *quinquereme*, to dismiss, with characteristic impatience, the whole account in Polybius as "pure myth," and Scullard to display an ignoble agnosticism. In a careful and patient investigation Wallinga shows that nothing more is required than attention to what Polybius says, and that the state of the evidence is such that it is more scientific to argue from the boarding-bridge to the nature of the contemporary *quinquereme* than in the contrary direction. He also shows that the boarding-bridge was a reasonable tactical expedient for the Romans to adopt at that stage of their evolution as a naval power, and that they could afford to abandon it later when they became better sailors.

By Wallinga's account the Romans, aware of their own inferior seamanship, decided to accept the necessity of bow-to-bow collision but to avoid the normal sequel in which the more agile ship would disengage and ram fatally the less agile. The means by which they hoped to prevent disengagement after the initial collision was at the same time a device by which they could pass their deck troops on to the enemy's ship and exploit their own superiority in close fighting. The device was a gangway in the bows, thirty-six feet long and four feet wide, armed underneath at its outboard end with a massive iron spike. A rope was attached to this outboard end and passed through a pulley at the head of a twenty-four-foot post erected in the bows. The post went through the floor

of the gangway where a slot was made to accommodate it. As the Roman ship went in to attack, the gangway's outboard end was raised by means of the rope and pulley, and at the critical moment allowed to fall on the enemy's prow. The spike made it fast and the Roman troops were able to board two abreast.

In one or two details I find Wallinga's reconstruction unconvincing. The position he gives to the slot in the gangway seems to be based on an impossible rendering of the Greek. Polybius says quite clearly that it comes after the first twelve feet of the gangway, while Wallinga wishes it to occupy almost the whole of that first twelve feet. Nor is his speculation on the tackle for the contrivance really profitable. In general, however, he has done an excellent piece of work. The boarding-bridge may now take its place as one of those inventions by which technology, even in the ancient world, affected the course of history.

J. S. MORRISON

*Trinity College
Cambridge University*

SCIENCE AND CIVILISATION IN CHINA.

Volume 2: *History of Scientific Thought*, by JOSEPH NEEDHAM. xxii, 696 pages, 13 figures, 12 tables. Cambridge University Press, New York 1956 \$14.50

This is the second volume of a projected seven-volume work on the history of Chinese science. Section 14.i, "Chinese Humanistic Studies as the Crowned Achievement of the Sceptical Tradition," is of interest because it describes the rise of Chinese archaeology. Needham, ascribes the rapid growth of archaeology in Sung times (eleventh-thirteenth centuries) to the critical attitude which had developed much earlier, and says that it reached "a thoroughly scientific level" in the Sung dynasty. It is true that the Chinese were far ahead of others in archaeological studies and in the compilation of catalogues and other records, but his expression must not be taken literally. This is a very brief treatment, since a longer one will appear in a later volume, but it gives the titles of important Chinese archaeological works of this early period. More material is contained in the first volume, *Introductory Orientations*, which appeared in 1954. Section 5.b, "Chinese Prehistory and the Shang Dynasty," is

of considerable value. This section describes the discovery of mid-Pleistocene "Peking Man" (earlier than *Neanderthal Man* and later than *Pithecanthropus erectus*), treats Neolithic culture in some detail, and ends with the bronze culture of the Shang dynasty, the first historical period of which there is archaeological evidence. Although this survey is compressed into twelve pages, it is nevertheless an excellent source owing to its clearness and its exceptionally rich bibliography.

R. C. RUDOLPH

University of California
Los Angeles

MAN, CULTURE AND SOCIETY, edited by HARRY L. SHAPIRO. xiii, 380 pages, 16 figures, 13 plates. Oxford University Press, New York 1956 \$7.50

An impressive array of distinguished scholars has contributed to this survey of major areas of anthropological investigation. As stated, the book is intended to appeal to the intelligent layman and the beginning student. Each chapter deals with a particular aspect of the study of man, summarizing the major facts and conclusions. The authors cover man from his emergence as a thinking creature with a "dream world" or "culture" of his own making, through the elaboration of his social and technological organization in both Old and New Worlds, to an analysis of "culture" itself, its structure and its operation.

Books composed of papers by specialists suffer from certain disadvantages. One is the lack of a consistent point of view. In presenting the facts each author presents his own orientation toward them. Consequently the reader must re-orient himself in each chapter. Regardless of the intrinsic interest of varying viewpoints, the overall effect is that of disconnected talks rather than of a continuous discussion providing an integrated interpretation. The technique is usually justified by the statement that the field is now too large to be handled by a single individual. This is undoubtedly true when dealing in detail with advanced problems, but it may be seriously questioned in the light of some published accounts and of the introductory courses offered in our universities. The argument for accuracy is in itself hardly sufficient to justify the general aversion to integrated presentations.

One cannot but feel that the effectiveness of communication from one mind to another, involving personal interpretation and understanding of the subject matter, far outweighs in importance any mechanical accuracy. Even a book by experts can contain errors, and the present volume is no exception. For example, the earliest specimen of terrestrial iron from Tell Asmar is placed four hundred years too early according to revisions made by the excavator, while the absence of any reference to the use of the zero in Mesopotamia around 500 B.C., or of the even earlier place value in the notation system, gives a false priority to the New World in the use of this concept. Such errors, however, are few.

A second drawback to volumes of this kind is the fact that chapter headings are taken from the contributors' own special fields. This results in a standardized content and gives one the uneasy feeling of having seen it all before. One would like to see a departure from this routine in which archaeology is inevitably split into Old and New World compartments and then summarized historically, while "culture" is dealt with in the abstract or comparatively. Concepts and language developed in one study are seldom used or tested in another, and one looks in vain for the cross-cutting chapter connecting the parts.

In spite of such general drawbacks the present volume, with its well chosen contributors, will reward the reader with an excellent thumb-nail sketch of the *status quo* in many fascinating problems concerning man and his development.

ROBERT H. DYSON, JR.

University Museum
University of Pennsylvania

EARLY ANATOLIA. The Archaeology of Asia Minor before the Greeks, by SETON LLOYD. With a Note on the Anthropology of the Ancient Inhabitants of Anatolia by MUZAFFER ŞENYÜREK. xx, 231 pages, 12 figures, 32 plates, 2 maps, 1 table. Penguin Books, Baltimore 1956 \$0.85

Early Anatolia continues the excellent series edited by Professor M. E. L. Mallowan. Its subtitle indicates the wide range of time covered; the area includes the entire peninsula plus the Lake Van region and the "Syro-Hittite" region on the southeast side of the Taurus Mountains. Mr. Lloyd, Director of the British Institute of Archaeology in Ankara, has a thorough acquaintance with Anatolia and has produced a sound and very readable book.

Anatolian archaeology is strongly regional in character at all periods. This may be due partly to the great size of the area and probably more to its topography, with rugged mountain barriers preventing easy communication among various regions. The west coast sites are almost always influenced by Greece, the Cilician plain by Syria and Upper Mesopotamia, the Taurus and Armenian region by the Caucasus. Mr. Lloyd has dealt wisely with this difficult situation by describing the archaeological developments site by site, grouping the sites into three main regions—South (chiefly Cilicia), Plateau and West—and working out the comparative chronology in the well known terms Neolithic, Chalcolithic, Early Bronze, etc. He is commendably cautious in his use of absolute dates.

The author first stresses the peculiarities of Anatolian geography and discusses terminology; he next deals briefly with the sites in order of their

IMPORTANT

- Pre-Columbian
- African
- South Seas
- Northwest Coast Indian

SCULPTURES

D'ARCY GALLERIES

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discovery, then summarizes the Anatolian cultures phase by phase. The remaining chapters give a more comprehensive description of the phases, and the author has succeeded admirably in producing a clear picture of the archaeological development. The small size of the book demands a rather general treatment, but the important features of each site are described with a gratifying lack of technical detail and jargon. Controversial problems are not avoided; there are succinct statements of the existing evidence, with tentative conclusions. The book is intended as a companion volume to O. R. Gurney's *The Hittites*, and it avoids duplicating material available in Gurney's book.

The photographic plates are well chosen and remarkably well reproduced in view of the small format. The author is particularly to be thanked for his Figures 2-4, giving his own drawings of characteristic pottery and objects from the major sites, period by period; although very small, the drawings are still clear and provide a good visual survey of the material.

The excellence of this little book must certainly give archaeologists hope for a more technical treatment of the same subject, designed for the needs of specialists, from Mr. Lloyd's hand.

ANN PERKINS

Yale University

CHUGACH PREHISTORY, The Archaeology of Prince William Sound, Alaska, by FREDERICA DE LAGUNA. xix, 289 pages, 37 figures, 59 plates, 7 maps. University of Washington Press, Seattle 1956 (University of Washington Publications in Anthropology, Vol. 13) \$6.50

Once more we welcome from Dr. de Laguna an important contribution to Alaskan prehistory, this time concerning an area east of her previous work in Cook Inlet. Although designed as a companion piece to Dr. Kaj Birket-Smith's *The Chugach Eskimo* (Copenhagen 1953), the volume was delayed in publication, through no fault of the author. It is based on field work done in 1930 and 1933.

The main body of the book is descriptive. An introductory geographical and geological sketch precedes a listing of the known sites in the Sound, organized in terms of historical Chugach tribal territories. Included are early

historical observations and Chugach traditions—a happy combination of ethnographic and archaeological reporting. The sites described in most detail are the double town of Palugvik on Hawkins Island near Cordova and the Palutat burial cave in Long Bay.

Subsequent chapters deal with disposal of the dead, rock paintings and artifacts. The section is well illustrated, provenience is scrupulously noted, and the whole forms a meticulously documented body of material from a hitherto archaeologically unknown region. Ethnographic comments and comparative data add to our understanding of the specimens.

Typological changes are not great. Some of the material is historical, while other artifacts compare best with those of Kachemak Bay sub-II and Kachemak Bay III. The total time span represented probably extends to only about five hundred years before contact. It is therefore not surprising that most of the stone tools were made by grinding rather than by the chipping technique of earlier Eskimo cultures, but Dr. de Laguna also suggests proximity to the Northwest coast as a contributing factor. The high percentage of wood-working tools likewise suggests Northwest coast influences.

Because the matter has been fully dealt with both in Dr. Birket-Smith's study and in her own previous publications, the author does not analyze the area's culture history in detail. Nevertheless she makes clear the importance of Prince William Sound in our understanding of aboriginal northwestern America. In the concluding chapter she discusses the significance of her findings in relation to some of the nearby cultures and reconstructs what she can of prehistoric Chugach life. A particularly intriguing problem is the apparent sparsity of population on Prince William Sound as far back as history and archaeology can take us, although it seems an ecologically desirable region capable of supporting quite a dense population.

Dr. de Laguna feels that the culture itself was probably of the same order as that of the Aleuts and Koniags, but regards the Chugach as a marginal group. She insists that an extensive series of local culture sequences, especially on Kodiak and the Aleutians, as well as additional and older material from Cook Inlet and from Prince William Sound itself, are required for a

clear understanding. Fortunately Laughlin, Marsh, Oswalt and others are now beginning to fill some of the gaps, and Dr. de Laguna herself has recently excavated in the critical Yakutat Bay region just east of the Pacific Eskimo, in historic Eyak and Tlingit territory.

CATHARINE MCCLELLAN

Barnard College
Columbia University

SUN CIRCLES AND HUMAN HANDS. The Southeastern Indians: Art and Industries, edited by EMMA L. FUNDABURK and MARY D. F. FOREMAN. 232 pages, 160 plates. Emma L. Fundaburk, Luverne, Alabama 1957 \$7.50

An event of great rarity in American archaeology is the publication of a volume designed for the non-specialist that is readable, accurate, up to date and comprehensive. In the Old World, particularly in Great Britain, many professional archaeologists have written authoritatively for the general public. In this country we have few such books and, by default, the popular demand for non-technical books on archaeology is met by inadequate and distorted popularizations that bear little relation to current expert opinion. Happily, *Sun Circles and Human Hands* can be recommended to the general reader as an attractive and carefully compiled presentation.

The editors summarize through quotation and paraphrase the chronology and culture of the prehistoric southeastern United States. Chapters are devoted to "Four Cultures" (Paleo-Indian, Archaic, Woodland and Mississippian), to trade, ceremony, symbolism, and to stone, copper, ceramic, wooden and bone artifacts. Some of the recent specialized literature is used, as well as earlier sources. The editors avoid detailed discussion of distributions and chronologies, and describe artifacts rather than sites and assemblages.

The illustrations, by their number, careful selection and high quality, do more than supplement the text—they form the core of the book. Few will be unfamiliar to the specialist, but many have not been easily accessible and, taken as a whole, they provide an impressive panorama of the artistic achievements of the southeastern Indians. It is commendable that the recent handicrafts of the area are illustrated, and a number of scenes



SUN CIRCLES AND HUMAN HANDS

The Southeastern Indians—
Art and Industries

Edited by Emma Lila Fundaburk
and Mary Douglass Foreman

500 PLATES, 228 PAGES—7¾" x 10½"
Enamel Paper, Cloth Bound,
Bibliography, Index

This book of pictures with descriptions by well-known archaeologists and colonial writers, depicts the art, techniques of craftsmanship, and life of Southeastern Indians. It includes artifacts from four cultures—Paleo, Archaic, Woodland, and Mississippian. Designs from Etowah, Spiro, Moundville, and many other sites make this a fascinating story.

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EMMA LILA FUNDABURK, PUBLISHER
LIVERNE, ALABAMA

reproduced from the times of the early European settlers. These will greatly help the general reader to appreciate the function, rather than merely the form, of the prehistoric artifacts.

Experts will find disputable details and regrettable omissions. But the volume provides an attractive review of the culture history of an important area and should be in the hands of all who have an interest in the region, in archaeology, in Indians, or in art.

RICHARD B. WOODBURY

Columbia University

THE WONDERFUL WORLD OF ARCHAEOLOGY, by RONALD JESSUP. 72 pages, numerous illustrations in color. Garden City Books, Garden City, New York 1956 \$2.95

To present scientific knowledge in non-technical language, and scientific facts with enthusiasm and imagination to a reader not grounded in the field, is a task of considerable magnitude. To prepare such material for children becomes an even more formidable task. This our author has accomplished successfully. In seeking to interest children, Jessup has combined

the excitement of discovery with the finished results and conclusions of an archaeological expedition. He does not analyze and describe one particular phase of the past but, rather, he tells the story of the archaeologist at work in various parts of the world. To illustrate, he picks some of the important discoveries of the past and brings them up to date by discussing modern methods of work: Carbon 14 for dating, the aqualung for the exploration of the seas, the airplane for surveying sites. The result is exciting. However, in skipping from Northern Rhodesia to northeastern Europe, or from Egypt to North America, the reader is jerked from century to century, and even a child will find himself wondering about the relative dates of the marvels of the past. The book is illustrated by colorful watercolors whose emphasis seems to be on the dramatic rather than on accuracy, but whose effect on a child's mind is undeniable.

The Wonderful World of Archaeology is a splendid introduction to archaeology for the young reader. Even if he finds himself asking when early civilizations flourished, he will still be excited by the numerous ways man has devised for uncovering the past.

EUNICE MYLONAS

New York University

BRIEF NOTICES

THE CONSERVATION OF ANTIQUITIES AND WORKS OF ART: Treatment, Repair, and Restoration, by H. J. PLENDERLEITH. xv, 373 pages, 11 figures, 55 plates. Oxford University Press, New York 1956 \$13.50

This encyclopaedic volume by one of the greatest experts in the conservation and restoration of antiquities and works of art comes as a boon to collectors, to curators of small museums, to librarians and to field archaeologists. Larger museums will also profit from the methods which have been evolved during thirty years' experience by the Keeper of the Research Laboratories of the British Museum. The subject matter discussed is as broad as the material treated in these great laboratories; yet the methods are described in a manner which makes them usable at home, in a small laboratory or in the field.

After a discussion of the effect of

environment on the present state of any object and the importance of environment for its future stability, there follow three major sections presenting the methods of treating organic materials, metals, and siliceous and related materials. For organic material, chapters are devoted to animal skins and skin products; papyrus, parchment and paper; prints, drawings and manuscripts; textiles; wood; bone and ivory; easel paintings. A general introduction to the problems concerning metals is followed by specific consideration of gold and electrum, silver, copper and its alloys, lead, tin and pewter, iron and steel. Stone, ceramics and glass are discussed in the final section. Thirteen appendices deal with details and technical aspects of conservation. A bibliography would have been useful.

ETRUSKISCHE PLASTIK, by GEORGE M. A. HANFMANN. 16 pages, 48 plates. Hans E. Günther Verlag, Stuttgart 1956 (Sammlung Parthenon) DM 10.80

In the well known format of *Die Sammlung Parthenon*, and within the confines of its usual 48 plates (in this case with 56 figures), George Hanfmann has given an excellently clear and concise picture not only of Etruscan sculpture but of the spirit, the history and the cultural importance of Etruscan civilization. Both the text and the plates are the kind of distillate which can be accomplished only by one intimately acquainted with his subject. The excellent quality of the illustrations adds greatly to the text and makes this photographically the best, though by no means the largest, collection of Etruscan sculpture.

I MOSAICI DELLA BASILICA DE S. MARIA MAGGIORE, by CARLO CECHELLI. 342 pages, 85 plates, many in color. Industria Libreria Tipografica Editrice, Turin 1956

A dignified publication produced by the Banco di Santo Spirito to mark the 350th anniversary of its founding by Pope Paul V in 1605. He was a great benefactor of the Basilica; hence an introductory chapter is devoted to his activities and those of other Renaissance Popes. The volume treats not only of the well known and recently reconditioned mosaics of the fifth and twelfth-fourteenth centuries but also of the ikon of the Madonna and the structure and origins of the Basilica.

WHEN EGYPT RULED THE EAST, by GEORGE STEINDORFF and KEITH C. SEELE. Second edition. xviii, 289 pages, 109 figures, 1 map. University of Chicago Press, Chicago 1957 \$5.75

In a new, revised edition of this well known handbook of Egyptian archaeology the surviving co-author, Keith C. Seele, has tried to bridge the gap of fifteen years since the first edition and to add the information necessary to bring the account up to date. He had the difficult task of doing this without altering the pagination of the original edition. While five chapters remain without meaningful change, others have been considerably rewritten, and where possible the text has been lengthened. One figure has been added and one changed; otherwise the illustration remains the same. The original index has been divided into three parts and serves better thus. It is surprising to see no change in the dates of the historical outline; Dynasty I is still set at 3200. But the many changes in the text have brought this handbook up to date insofar as was possible within the restrictions set down, and in its new form it will continue to be a valuable aid for the study of Egyptology.

ÉTUDES D'ÉPIGRAPHIE, D'ARCHÉOLOGIE ET D'HISTOIRE AFRICAINES, by LOUIS LESCHI. 442 pages, numerous plates and figures. Gouvernement Général de l'Algérie, Sous-Direction des Beaux-Arts, Service des Antiquités. Arts et Métiers Graphiques, Paris 1957

As a memorial to the man who served as Director of Antiquities in Algeria from 1932 to 1954 a selection of sixty-six of his published articles is re-issued in a single volume, together with a complete bibliography.

THE MIDDLE CYPRIOTE BRONZE AGE, by PAUL ÅSTRÖM. xviii, 307 pages, 19 figures, 40 plates. Lund 1957 (Doctoral Dissertation, University of Lund)

This dissertation, eventually to appear as part of the long heralded Volume IV, Part 1, of *The Swedish Cyprus Expedition*, is the first full treatment of the Cypriote Middle Bronze Age since Gjerstad's *Studies on Pre-historic Cyprus* appeared in 1926. It was the Swedish Cyprus Expedition that added much new material during the 1930's, but as before most of this

was from tombs. What is most significant about this new account is that it points up the fact that in the thirty years since Gjerstad's study we have become little if any better off in our knowledge of the development of the Middle Cypriote Period, for there has been no excavation of well stratified settlement remains of the period. The addition of new material from tombs can do, and has done, almost nothing to help in establishing a reliable chronological scheme. The excavation of Middle Bronze Age settlements on Cyprus is a must for the near future. When that is done, the material so excellently presented here will take on important new significance.

A CHANCAY-STYLE GRAVE AT ZAPALLAN, PERU. An Analysis of its Textiles, Pottery, and Other Furnishings, by S. K. LOTHROP and JOY MAHLER. viii, 38 pages, 10 figures, 17 plates, 9 tables. The Peabody Museum, Cambridge 1957 (Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. L, No. 1) \$2.50

Despite the great quantity of Peruvian grave furniture, the full contents of few graves are on record. This grave from Zapallan, close to Lima, produced some 329 objects in twenty-two different categories. The grave and the furnishings, especially the pottery and the textiles, are studied. The pottery is of the style known as Chancay. There are appendices on Cloth Dolls, Dogs, and Textile Dyes.

DIE JUNGERE VORRÖMISCHE EISENZEIT GOTLANDS. Funde, Chronologie, Formenkunde, by ERIK NYLÉN. 560 pages, 313 figures. Kungl. Vitterhets Historie och Antikvitets Akademien, Stockholm 1956 Sw. Kr. 150

The island of Gotland, located off the eastern coast of Sweden, had an exceedingly rich material culture during the Late Iron Age. The riches which arose out of the dominance of Gotland in Baltic trade may be seen in a series of cemeteries excavated since the mid-nineteenth century. Nylén brings this material together, examines it chronologically and treats the development of ornaments, tools, weapons and pottery from the graves. Gotland is finally given its place in the general development of northern Europe during late La Tène times.

PITTURE DI STABIA, by OLGA ELIA. 74 pages, including many illustrations in color, 44 plates, 3 designs. Edizioni Scientifiche Italiane, Naples 1957 5000 lire

Admirable specimens of the wall-paintings of the luxurious villas in this region, which with Pompeii and Herculaneum were buried in the eruption of Vesuvius of A.D. 79, had reached the Naples Museum as a result of the far from scientific excavations of 1749-1762 and 1775-1782. In 1952 a fresh start was made in investigating ancient remains in the area, this time with the scientific and technical methods that had been developed at Pompeii. The results have already proved impressive. The wall surfaces of the Stabian villas could be treated in a more spacious manner than those of the houses of Pompeii and Herculaneum, and the painters took full advantage of the opportunity for developing a broader style, in some respects anticipating the coloristic effects that were to be achieved in the late Renaissance and more recent centuries. The present volume is welcome as conveying for the first time an adequate idea of this unique artistic repertory—unique to us, but probably reflecting a style that had arisen in Rome itself.

A NATURALIST IN PALESTINE, by VICTOR HOWELLS. 180 pages, 13 figures, 29 plates, 1 map. Philosophical Library, New York 1957 \$6.00

The book is very much alive in some of its descriptions of the struggle for survival among Palestinian fauna as well as its eye-witness accounts of Arab life. If, however, the author had written less as a naturalist and more as a nature-loving traveler his book would have had greater charm for the layman, for whom it is apparently intended.

LA TECNICA EDILIZIA ROMANA, con particolare riguardo a Roma e Lazio, by GIUSEPPE LUGLI. Volume I, text, 743 pages with 151 figures; Volume II, 210 plates with accompanying text. Giovanni Bardi, Rome 1957 30,000 lire

A fundamental publication embodying the results of many years of research by the distinguished Professor of Roman Topography in the University of Rome: it is devoted to all forms of construction in Central Italy from earliest times to the close of antiquity,

and establishes the criteria for their interpretation and dating. With the full documentation thus supplied by—in most instances—specially prepared photographs and designs, the successive stages in the development of technique emerge with clearness; their historical and cultural significance is treated in the text. Dr. Lugli's assemblage and presentation of this vast material is well nigh impeccable and his interpretation highly convincing; with this great work and the two volumes produced and in preparation by Dr. Marion E. Blake, which cover the same field in somewhat greater detail, future students dealing with this subject will be well equipped for their special undertakings.

ROMAN LIFE, by MARY JOHNSTON. 474 pages, numerous illustrations. Scott, Foresman and Company, Chicago 1957 \$5.00

Hundreds of photographs and drawings illustrate Roman life in all its aspects. The text is informative and simply written. For the young Latin student this book will be very useful.

STONE ARTIFACTS at and near the Finley Site, near Eden, Wyoming, by LINTON SATTERTHWAITE. iv, 27 pages, 5 plates. The University Museum, University of Pennsylvania, Philadelphia 1957 (Museum Monographs) \$0.75

Further detailed data on the field excavations and projectile points earlier described in a 1951 Monograph by J. H. Moss and others, "Early Man in the Eden Valley." This is a very important Early Man site on which archaeologists had been eager to receive more information, and to see illustrations of all the projectile points found in that region. Satterthwaite supplies these data, as well as many other important items and observations.

A HITTITE CEMETERY AT GORDION, by MACHTELD J. MELLINK. xii, 60 pages, 30 plates, frontispiece. University Museum, University of Pennsylvania, Philadelphia 1956 (Museum Monographs) \$2.50

The first volume presenting results of the Pennsylvania excavations at Gordion in Central Anatolia is a publication of a unique Hittite cemetery consisting of 47 burials, 34 of these pithos burials, 3 in cist graves and 10 just plain

inhumations. All were contracted; a few showed only semi-contraction. Pottery and personal ornaments made up the unpretentious grave offerings. Extramural burial in a separate cemetery sets this area off from much of the rest of Anatolia, but continues a tradition that goes back to the third millennium. This cemetery is to be dated from the nineteenth to the sixteenth centuries, Middle Anatolian phases II and III.

ART FAKES AND FORGERIES, by FRITZ MENDAX. Translated from the German by H. S. WHITMAN. 222 pages, 24 plates, numerous text figures. Philosophical Library, New York 1956 \$6.00

Fakes and forgeries are merely noted for antiquity, contemplated for the Middle Ages, and discussed more at length for Renaissance and modern times. Here is recounted not only the counterfeiting of Greek statues, holy relics and Renaissance pictures, but the perfection of this art down to the unmasking of the infamous Van Meegeren. The author, writing under a suitable pseudonym, entertainingly exposes the tricks of the forger.

EARLY MESOPOTAMIAN ROYAL TITLES: A Philologic and Historical Analysis, by WILLIAM W. HALLO. x, 166 pages. American Oriental Society, New Haven 1957 (American Oriental Series, Vol. 43) \$3.00

A doctoral dissertation at the University of Chicago, dealing with Mesopotamian royal titles and epithets, pre-Sargonic and later periods, including the Ur III Dynasty; a well tabulated list of titles and persons to whom these refer. A synopsis and bibliography conclude the book.

MUSEO NAZIONALE DI NAPOLI, by BIANCA MAIURI. 164 pages with numerous illustrations, many in color. Istituto Geografico De Agostino, Novara 1957 6000 lire

A choice selection from the masterpieces of sculpture, painting, mosaic and the minor arts in this incomparable museum is illustrated in the most modern photographic technique, marking a distinct advance on the earlier publications familiar to scholars. Needed information and comment is skilfully presented in the brief text.

KORINTHIAKA. Recherches sur l'histoire et la civilisation de Corinthe des origines aux guerres médiques, by ÉDOUARD WILL. 720 pages, 3 maps. E. de Boccard, Paris 1955 3500 frs.

Following a brief account of pre-historic Corinth, Will proceeds to describe fully the political, military, religious and economic history of the city from the Dark Ages to the Persian War. Although he bases his study largely on ancient texts, for which there is a detailed index of cited passages, the author also includes the archaeological evidence from both Corinth and its dependent sanctuaries and colonies. The full bibliography will be invaluable for further study of Corinth. Corinthian mythology and cults are thoroughly studied; the chronology of the Cypselids and the history of their tyranny form another major part of the volume. The final chapter considers Corinth from the end of the tyranny to the end of the Archaic period.

HIGGINS FLAT PUEBLO, Western New Mexico, by PAUL S. MARTIN, JOHN B. RINALDO, ELAINE A. BLUHM and HUGH C. CUTLER. 218 pages, 85 figures. Chicago Natural History Museum, Chicago 1956 (Fieldiana: Anthropology, Vol. 45) \$4.50

Full report of the 1953 excavation. A Late Mogollon masonry village of Tularosa phase, ca. A.D. 1200-1250. Fourteen rooms out of about thirty-one were excavated. Fifteen burials, mainly of children and infants, were found beneath the floors. A sketch of Mogollon culture history, 2000 B.C. to A.D. 1300, closes the report. The region was abandoned at about 1300 for unknown causes.

PLANTS OF THE BIBLE, by A. W. ANDERSON. 72 pages, 3 figures, 12 color plates. Philosophical Library, New York 1957 \$6.00

An exceptionally attractive, well illustrated and readable handbook for plant and Bible lovers. The author has summarized what is known and surmised about plants mentioned in the Bible and has interspersed the information with mention of later uses of the plants and suitable legends. The book will have surprises for those who have automatically thought of the plant names used in translation in terms of our own familiar flora.

AN ARCHAEOLOGICAL SURVEY of West Central New Mexico and East Central Arizona, by EDWARD BRIDGE DANSON. ix, 133 pages, 18 figures, 23 tables. The Peabody Museum, Cambridge 1957 (Papers of the Peabody Museum of Archaeology and Ethnology, Harvard University, Vol. XLIV, No. 1) \$4.50

Very thorough and meaty report of the results of eight years of reconnaissance by the Peabody Museum Upper Gila Expedition. Except for a few sites intensively dug, this important region was known only slightly. The eight sub-regions are considered throughout their archaeological history as shown by the different sites noted. Then the general characteristics of the area: Architecture, Pottery, Stone Implements, Patterns of Population, Trade and Commerce, etc. The cause for the abandonment of most of this region by about A.D. 1250 is discussed.

AGORA, GENEZA I ROZWÓJ RYNKU GRECKIEGO (L'Agora, La genèse et le développement du marché grec), by STEFAN PARNICKI-PUDELKO. 163 pages, 67 figures. Zakład Imienia Ossolińskich-Wydawnictwo, Warsaw 1957 (Biblioteka Archeologiczna Vol. 8) 20 zlotys

In this lean, modest volume entitled, *The Agora: The Origin and Development of the Greek Market Place*, the author is particularly concerned to trace the way in which the agora evolved to meet the changing political, commercial and cultural needs of the Greek community from the Bronze Age down to the collapse of town life in late antiquity. The illustrations are well chosen and the bibliography is up to date. The Polish text is followed by summaries in Russian and French, three pages of each.

AKRAI, by LUIGI BERNABÒ BREA, with the collaboration of GIOVANNI PUGLIESE CARRATELLI and CLELIA LAVIOSA. 187 pages, 40 plates. Società di Storia Patria per la Sicilia Orientale, Catania 1956 (Serie III, Monografie Archeologiche della Sicilia, I) 9000 lire

The remarkable features of this fortified strategic site, high up among the hills to the west of Syracuse, were familiar to former generations of antiquarians, but then underwent a period of comparative neglect. The present

publication incorporates the results of a recent official survey and of the first campaigns of a systematic excavation by the *Soprintendenza* for Eastern Sicily. Special interest attaches to the theater, the *bouleuterion*, the quarries with rock-cut cult niches known as *templi ferali*, and the cliff-face carved into the large-size images of the Great Mother, Cybele (an identification here established), called locally *santoni*.

ARCHAEOLOGICAL STUDIES IN SZECHWAN, by CHENG TÊ-K'UN. xxi, 320 pages, 118 plates, 5 maps, 11 tables. Cambridge University Press, New York 1957 \$13.50

Readers who found Professor Cheng's "Ancient Kiln Sites in Szechwan" (ARCHAEOLOGY 9 [1956] 244-250) of interest will welcome this work. It fills a long felt need because it presents for the first time a careful survey of the prehistoric archaeology of Szechwan province in southwest China. This revealing study is followed by three other important essays dealing with burial remains of the Han and Sung dynasties and early kiln sites in this region. This is a work of major importance.

STILL DIGGING, by Sir MORTIMER WHEELER. 236 pages, 16 illustrations. E. P. Dutton & Co., New York 1956 \$4.00

Memoirs of a distinguished archaeologist, relating how "the insidious poisons of archaeology" first entered his system, his experiences during two wars, his excavations in England, India and elsewhere, and many other details of his varied career.

JUNIOR BIBLE ARCHAEOLOGY, by H. V. MORSLEY. 104 pages, 4 plates, 1 map. The Macmillan Company, New York 1956 \$1.50

Although this small book purports to be for "children of Secondary School age," the questions with which it starts are more likely to be asked by those much younger. "Men called archaeologists," we are told, dug out the answers. The book suffers from oversimplification in its attempt to telescope a vast amount of material into a few pages. There is a need for a book of this type; unfortunately the present volume does not meet that need.

THE SAWMILL SITE: A Reserve Phase Village, Pine Lawn Valley, Western New Mexico, by ELAINE A. BLUHM. 86 pages, 32 figures. Chicago Natural History Museum, Chicago 1957 (Fieldiana: Anthropology, Vol. 47, No. 1) \$2.25

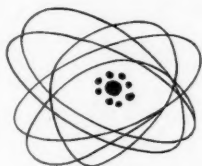
This small masonry village, formerly called the Fox Farm Site, was partially excavated in 1951, 1952 and 1954. It was a small pueblo of 8-10 rooms, of which a kiva and five rooms were excavated. The rectangular kiva is of especial interest as being the only kiva excavated in this region, where they seem to be extremely rare. The site was apparently occupied for several centuries beginning about A.D. 950, a continuity from the earlier Mogollon culture.

LATE MOGOLLON COMMUNITIES. Four Sites of the Tularosa Phase, Western New Mexico, by PAUL S. MARTIN, JOHN B. RINALDO and ELOISE R. BARTER. 144 pages, 57 figures, 5 tables. Chicago Natural History Museum, Chicago 1957 (Fieldiana: Anthropology, Vol. 49, No. 1) \$4.00

A further volume in the excellent series describing the work of the Chicago Museum of Natural History in west central New Mexico. Continuing the high quality of past publications, Paul Martin and associates deal mainly with portions of three sites, including a Great Kiva, a pithouse kiva and a number of pueblo rooms. Eloise Barter has added two valuable sections on the pottery of this and adjacent areas. Martin's summary not only reviews the present volume, but places it in perspective with previous work as well as with larger problems of the area.

BYZANTINE MONUMENTS IN ATTICA AND BOEOTIA. Architecture, Mosaics, Wall Paintings. Text by M. CHATZIDAKIS, drawings by A. TASSOS, copies by PH. ZACHARIOU. 28 pages, 21 plates. Athens Editions, Athens 1956

This beautifully produced folio focuses our attention upon the two great monuments of the Middle Byzantine period, Hosios Loukas and Daphni. Although most of the text and the majority of the fine color plates of mosaics and wall paintings concern these two churches, other Byzantine monuments, the Panaghia at Skripou, Hosios Meletios, and a number of churches in Athens and its suburbs, also receive cursory coverage.



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